



DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, D.C. 20350-2000

IN REPLY REFER TO

OPNAVINST 5100.23F
N45
15 July 2002

OPNAV INSTRUCTION 5100.23F

From: Chief of Naval Operations

Subj: NAVY OCCUPATIONAL SAFETY AND HEALTH (NAVOSH) PROGRAM
MANUAL

Ref: (a) SECNAVINST 5100.10H (NOTAL)
(b) OPNAVINST 5100.8G
(c) OPNAVINST 5100.19D (NOTAL)
(d) SECNAVINST 5212.5D (NOTAL)

Encl: (1) Navy Occupational Safety and Health Program Manual

1. Purpose. To affirm the Navy Occupational Safety and Health (NAVOSH) Program for all Navy personnel and implement the following Department of Defense (DOD) instructions:

a. DODI 6055.1 of 19 August 1998, Department of Defense Safety and Occupational Health (SOH) Program (NOTAL)

b. DODI 6055.5 of 10 January 1989, Industrial Hygiene and Occupational Health (NOTAL)

c. DODI 6055.7 of 3 October 2000, Accident Investigation, Reporting, and Record Keeping (NOTAL)

d. DODI 6055.11 of 21 February 1995, Protection of DOD Personnel from Exposure to Radiofrequency Radiation and Military Exempt Lasers [to N454 for action] (NOTAL).

2. Cancellation. OPNAVINST 5100.23E and report control symbols OPNAV 5100-15, 5100-19, 5100-16, 5100-17, 5100-20, 5100-18, 5102-9 and 5102-12. This instruction takes precedence over the occupational injury and illness investigation, reporting, and recordkeeping requirements contained within OPNAVINST 5102.1C, Chapters 2, 3, 4, 7, and 9.

3. Discussion. References (a) and (b) provide policy and outline responsibilities for the implementation of the total Navy Safety and Occupational Health Program. The Navy program encompasses all safety disciplines such as aviation safety, weapons/explosives safety, off-duty safety, traffic safety, and occupational safety and health. As the title implies, the NAVOSH program specifically addresses the maintenance of safe and healthful conditions in the workplace or the occupational environment. This instruction covers the implementation of the NAVOSH Program.

4. Action. All levels of command shall implement and manage the NAVOSH Program in compliance with the policies, procedures, actions, and guidance set forth by this instruction. Reference (c) is the implementing document for forces afloat. Reference (d) provides guidance on records disposition and shall be followed by shore and afloat commands. The policies, procedures, and actions prescribed here are published without the necessity for implementing instructions from the Echelon II commands, bureaus, and offices, except where specifically directed. However, commands having significant NAVOSH responsibilities should provide appropriate supplemental guidance.

5. Reports and Forms

a. The following reports are required in this instruction and are approved in accordance with SECNAVINST 5214.2B.

(1) OPNAV 5100-25, Exposure Monitoring Plan, chapter 8, page 8-4, paragraph 0803f(4) (see appendix 8-A)

(2) OPNAV 5100-26, NAVOSH Deficiency Notice, chapter 9, page 9-3, paragraph 0903j (see appendix 9-B)

(3) OPNAV 5100-27, Navy Employee Report of Unsafe or Unhealthful Working Condition, chapter 10, page 10-1, paragraph 1002b (see appendix 10-A)

(4) OPNAV 5100-21, Navy Occupational Safety and Health (NAVOSH) Program Costs, chapter 13, page 13-1, paragraph 1303 (see appendix 13-A)

(5) OPNAV 5100-28, Dispensary Permit, chapter 14, page 14-18, paragraph 1410 (see appendix 14-G)

(6) OPNAV 5100-29, Safetygram, chapter 14, page 14-9, paragraph 1408a(9) (see appendix 14-B)

(7) 1146-DOL-XX, Annual Report of Navy Civilian Occupational Injuries and Illnesses, chapter 14, page 14-17, paragraph 1409a(3) (see appendix 14-F)

(8) OPNAV 5102-11, Safety Investigation Report (SIR), chapter 14, page 14-2, paragraph 1402a (see appendix 14-A)

b. The laser and radio frequency radiation (RFR) exposure reporting requirements are exempted from reports control by SECNAVINST 5214.2B.

c. The following forms are available from the Navy supply system and may be requisitioned per CD ROM NAVSUP P600 (NLL):

<u>FORM</u>	<u>TITLE</u>	<u>STOCK NUMBER</u>
DD 2215 (05/96)	Reference Audiogram	0102-LF-100-2000
DD 2216 (05/96)	Hearing Conservation Data	0102-LF-105-2100
DD 2272 (02/87)	DOD Occupational Safety and Health Protection Program	0102-LF-002-2721
DD 2521 (12/88)	Hazardous Material Warning Label	0102-LF-012-0800
DD 2522 (12/88)	Hazardous Chemical Warning Label	0102-LF-012-1100
OPNAV 5100/9(10/92)	Dispensary Permit	0107-LF-015-8300
OPNAV 5102/4(07/94)	SAFETYGRAM	0107-LF-015-8400

d. The following forms are available from the Federal Supply System through normal supply procurement procedures.

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<u>FORM</u>	<u>TITLE</u>	<u>STOCK NUMBER</u>
SF 600 (5/84)	Chronological Record of Medical Care	7540-00-634-4176
SF 1164 (11/77)	Claim for Reimbursement for Expenditures on Official Business	7540-00-634-4356
OF 1129 (10/86)	Cashier Reimbursement Voucher	7540-00-634-4319

e. OSHA Form 174, Material Safety Data Sheet, is available from the Occupational Safety and Health Administration, Office of Publications, Room S1212, 200 Constitution Ave., N.W., Washington, DC 20210, or from the General Services Administration (GSA) Business Service Centers in Boston, New York, Philadelphia, Atlanta, Chicago, Kansas City, Fort Worth, Denver, San Francisco, Los Angeles, Seattle, and from GSA Specification Sales, Bldg. 197, Washington, DC 20407.

f. The following forms are authorized for local reproduction.


<u>FORM</u>	<u>TITLE</u>
OPNAV 5100/9 (10/92)	Dispensary Permit
OPNAV 5100/11 (11/92)	Navy Employee Report of Unsafe or Unhealthful Working Conditions
OPNAV 5100/12 (9/92)	NAVOSH Deficiency Notice
OPNAV 5100/13 (9/92)	NAVOSH Program Costs
OPNAV 5100/14 (10/91)	Exposure Monitoring Plan
OPNAV 5100/18 (12/98)	Hazard Abatement Project Request Form
OPNAV 5102/4 (10/92)	SAFETYGRAM
OPNAV 5102/8 (10/94)	Annual Report of Navy Civilian Occupational Injuries and Illnesses

<u>FORM</u>	<u>TITLE</u>
OPNAV 5102/10 (2/98)	Advice to Witness
OPNAV 5102/11 (2/98)	Safety Investigation Report (SIR) Enclosure Advice to Witness (Promise of Confidentiality)

g. The following forms are available from the Navy Environmental Health Center (NEHC), 620 John Paul Jones Circle, Suite 1100, Portsmouth, Virginia 23708-2103.

<u>FORM</u>	<u>TITLE</u>
NEHC 5100/13 (6/97)	Industrial Hygiene Air Sample Survey Form
NEHC 5100/17 (6/97)	Industrial Hygiene Noise Survey Form
NEHC 5100/18 (6/97)	Industrial Hygiene Noise Dosimetry Form

6. Records Disposition. Apply appropriate records disposition standards of reference (d) to all records generated. To the extent that any disposition standard in this instruction is inconsistent with reference (d), the requirements of reference (d) shall take precedence.


R. D. Reilly, Jr.
By direction

Distribution:

SNDL Part 1 (Operating Forces of the Navy; Unified and Specified Commands; U.S. Elements of International Commands) (less 28, 29, 30, 31, 32, and 36) and Part 2 (less A6 and V) (Shore Activities of the U.S. Navy)

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15 July 2002

**NAVY
OCCUPATIONAL
SAFETY AND HEALTH
PROGRAM MANUAL**

OPNAVINST 5100.23F



**NAVY OCCUPATIONAL SAFETY AND HEALTH (NAVOSH)
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CHAPTER 1

INTRODUCTION

0101. References

Throughout the manual, references applicable to each chapter appear at the end of the chapter.

0102. Definition of Terms

See the Glossary at the end of the manual for the definition of special terms used throughout the manual.

This manual uses the words "shall," "will," "must," "should," "may," and "can" throughout. Shall, will, and must are directive in nature and require mandatory compliance. Should is a strong recommendation, but compliance is not required. May or can, when used, are optional in nature, and compliance is not required.

0103. Background

a. The Navy has historically maintained safety and health programs to protect its personnel and property. Occupational safety has long been an element of the overall Navy safety program that also includes explosive safety, nuclear safety, aviation safety, traffic safety and off-duty safety. The Chief of Naval Operations (N45) has traditionally managed the occupational safety and health program.

b. The program gained special prominence after passage of the Occupational Safety and Health Act (OSH Act) on 31 December 1970. Although the primary thrust of the OSH Act was directed at the private sector employer, Section 19 of the OSH Act directed Federal agencies to establish and maintain comprehensive and effective Occupational Safety and Health (OSH) programs consistent with the standards issued under Section 6 of the OSH Act.

c. On 26 July 1971, the President signed Executive Order (E.O.) 11612, entitled *Occupational Safety and Health Programs for Federal Employees*. This E.O. stated the Federal government, as the nation's largest employer, has a special obligation to set an example for safe and healthful employment. It directed the head of each Federal department and agency to establish an OSH program in compliance with Section 19 of the OSH Act. Over the next 3 years, many Federal agencies made only moderate progress. Consequently, Congress received considerable criticism for a perceived double standard in OSH requirements between the private sector and Federal agencies. As a result, the President issued E.O. 11807 in 1974, which replaced E.O. 11612 and more clearly defined the scope, requirements, and responsibilities of Federal agency programs. In addition, E.O. 11807 tasked the Secretary of Labor to issue guidelines designed to assist Federal agencies in establishing their programs. The Secretary issued these guidelines on 9 October 1974 as Title 29, Code of Federal Regulations, Part 1960 *Safety and Health Provisions for Federal Employees*.

d. The actions described above still did not satisfy some critics since several Federal agencies questioned the regulatory authority of the Department of Labor (DOL) guidelines (29 CFR

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1960). Addressing this issue, on 26 February 1980, the President signed E.O. 12196, *Occupational Safety and Health Programs for Federal Employees*, superseding E.O. 11807.

The Secretary of Labor revised DOL guidelines (29 CFR 1960) on 21 October 1980 and reissued them as *Basic Program Elements for Federal Employee Occupational Safety and Health Programs*.

e. The Department of Defense (DoD) has issued many directives and instructions to implement the Federal guidance outlined above. Prominent among these is reference 1-1 that outlines general DoD policy and procedures for implementation of the OSH Act and the associated E.O., and reference 1-2 that provides more specific guidance for implementation of the basic OSH program elements specified in 29 CFR 1960.

f. Following the provisions of reference 1-1, the Assistant Secretary of the Navy (Installations and Environment) (ASN (I&E)) was appointed as the Designated Safety and Occupational Health Official for the Department of the Navy (DON), with responsibilities outlined in reference 1-3. Reference 1-3 contains policy statements and outlines responsibilities for the implementation of the total safety and occupational health program for the Navy. Reference 1-3 delegates responsibility for managing the Navy Occupational Safety and Health (NAVOSH) program to the Chief of Naval Operations (CNO) who is specifically responsible for the issuance of appropriate implementing directives.

g. This manual implements references 1-1 through 1-3 and provides policy, procedures and guidance for the NAVOSH program.

0104. Navy Occupational Safety and Health (NAVOSH) Policy

Navy policy is to provide a safe and healthful workplace for all personnel. The Navy achieves these conditions through an aggressive and comprehensive NAVOSH program fully endorsed by the Secretary of the Navy (SECNAV) and implemented through the appropriate chain of command. The program includes the following features:

- a. Compliance with applicable standards
- b. OSH inspection of all workplaces by qualified OSH inspectors at least annually
- c. Prompt abatement of identified hazards, including elimination or minimization of all hazards through engineering or administrative controls. Where engineering or administrative controls are not feasible, activities shall provide appropriate personal protective equipment (PPE) at government expense. Where hazard abatement resources are limited, activities shall eliminate the most serious problems first. Where unabated serious hazards have not been eliminated, activities shall post appropriate notices to warn employees and define interim protective measures.
- d. Procedures for all personnel to report suspected hazards to their supervisors and/or safety and health officials without fear of reprisal
- e. Appropriate OSH training for all safety and health officials, supervisory and management personnel, and employees. Activities shall integrate applicable OSH requirements into training programs and technical and tactical publications.

- f. Procedures to review, in advance of construction or procurement, the design of facilities, systems, and subsystems to ensure that OSH hazards are eliminated or controlled throughout the life cycle.
- g. Thorough mishap investigations and a comprehensive OSH management information system that provides all OSH data required by higher authority
- h. Comprehensive occupational health surveillance programs, both medical and industrial hygiene, implemented by qualified personnel
- i. Procedures consistent with Office of Personnel Management (OPM) and Navy Personnel Command (COMNAVPERSCOM) directives to measure employee performance in meeting NAVOSH requirements/objectives.

0105. Applicability

- a. The provisions of this manual apply to all Navy civilian and military personnel and operations worldwide except where responsibility rests with the Commandant of the Marine Corps (CMC), and for those afloat personnel falling under the requirements of reference 1-4. Exceptions also include military-unique equipment, systems and operations; conditions governed by other statutory authorities or interservice support agreements; and conditions governed by international agreements overseas.
- b. The provisions of this manual do not apply to Navy contractors, except for the following:
 - (1) Situations in which the United States, by admiralty law or other law, is responsible for contractor employee injury compensation (for example, for employees working under the Commander, Military Sealift Command (COMSC), (reference 1-4)).
 - (2) Situations where the Navy exercises statutory authority for safety and health and, as a result, the OSH Act does not directly apply.
- c. Where the safety and health of the contractor's employees are affected, the contractor is responsible directly to the DOL's Occupational Safety and Health Administration (OSHA) or appropriate state office where OSHA has approved a state plan.
- d. Commanding officers shall apply this manual consistently with the provisions of reference 1-5, other provisions of law providing for collective bargaining agreements and procedures, and any agreements entered into under such provisions. They shall determine matters of official leave for employee representatives involved in activities under this manual by the procedures of reference 1-5 or applicable collective bargaining agreements.
- e. Under the statutory authority of the Atomic Energy Act of 1954, Section 309(a) of the Department of Energy Organization Act, and E.O. 12344 of 1 February 1982, the Director of Naval Nuclear Propulsion Program (CNO (N00N)) is responsible for the safety of reactors and associated naval nuclear propulsion plants, and the control of radiation and radioactivity associated with naval nuclear propulsion plant activities, including prescribing and enforcing standards and regulations for these areas as they affect the environment and the safety and health of

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workers, operations and the general public. Accordingly, for the above areas, the Naval Nuclear Propulsion Program is exempt from the requirements of this manual. However, for areas other than those described above, such as asbestos controls, machine guarding, etc., the requirements of this manual apply to Naval Nuclear Propulsion Program activities.

f. By the authority of 10 U.S.C. Section 172, explosive safety is exempt from the requirements of this manual. However, this manual does apply to occupational safety and health issues in explosives and ordinance areas, such as the evaluation of exposure to hazardous materials, noise, machine guarding, etc.

g. While the general concepts and provisions of this manual apply to forces afloat, exceptions must be made for military-unique equipment, systems, and operations. Because of differences in organization and operating environment among surface ships, submarines and shore activities (such areas as chain of command relationships, required councils or committees, training and hazard abatement procedures), forces afloat require specifically tailored procedures. Reference 1-4 contains these provisions. The applicable chapter in reference 1-4 is identified at the end of each chapter in this manual.

Chapter 1

References

1-1. DoD Directive 1000.3 of 29 Mar 79, Safety and Occupational Health Policy for the Department of Defense (NOTAL)

1-2. DoD Instruction 6055.1 of 19 Aug 98, DoD Occupational Safety and Health Program (NOTAL)

1-3. SECNAV Instruction 5100.10H of 15 Jun 99, Department of the Navy Policy for Safety, Mishap Prevention, Occupational health and Fire Prevention Programs (NOTAL)

1-4. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

1-5. P.L. 95-454, Title VII, Civil Service Reform Act, 5 U.S.C. Sections 7101-7135 (1978 Supp.), 13 October 1978

CHAPTER 2

RESPONSIBILITIES

0201. Discussion

a. The maintenance of a safe and healthful workplace is a responsibility of commands throughout the Navy. A successful Navy Occupational Safety and Health (NAVOSH) program, one that truly reduces work-related risks and mishaps, results only when support and commitment to the program permeate every level of an organization. Within the Navy, the Chief of Naval Operations (CNO) has overall responsibility for the NAVOSH program and implements the program through the chain of command. Line management is responsible for the maintenance of safe and healthful working conditions.

b. This chapter describes the responsibilities at each command level for implementing the NAVOSH program.

0202. Assistant Secretary of the Navy (Installations and Environment (ASN (I&E))

ASN(I&E) is the designated safety and occupational health official for the Department of the Navy (DON) which includes the Navy and Marine Corps.

0203. Chief of Naval Operations (CNO)

Under reference 2-1, the CNO, in coordination with the Commandant of the Marine Corps (CMC) (concerning safety and occupational health matters of mutual interest), shall:

a. Issue appropriate directives and policies for the NAVOSH program per references 2-1 through 2-3. The Director, Environmental Protection, Safety and Occupational Health Division (N45) is responsible for developing NAVOSH program policy and guidance and issuing NAVOSH standards under references 2-1 through 2-6.

b. Establish, manage and maintain appropriate planning, programming, staffing and budgeting for NAVOSH program implementation.

c. Issue criteria for records maintenance and provide to the Secretary of the Navy (SECNAV) all reports required by references 2-3 through 2-9.

d. Conduct appropriate research and development to preclude occupational exposures degrading an employee's health status or work performance.

e. Ensure acquisition managers comply with the requirements of reference 2-9 and other applicable Federal agency safety and health standards or criteria in the procurement of military systems, subsystems, equipment and related facilities.

f. Maintain the NAVOSH Quality Council.

g. Adopt, develop and issue, as necessary, NAVOSH standards (see chapter 16 on Standards). Coordinate Navy review and input for new and revised occupational safety and health regulations and national consensus standards.

h. Ensure commands comply with applicable Navy regulations and Federal statutes governing the control of classified and sensitive unclassified information. (Refer to chapter 11, section 1106).

0204. Headquarters Commands

Headquarters commands are responsible for establishing a comprehensive safety and health program. Section 0302 delineates these duties and responsibilities.

0205. Policy Formulation and Implementation

The administration and management of the NAVOSH program is detailed in reference 2-10. Major responsibilities and technical support areas are summarized below.

a. Policy Formulation. The NAVOSH program includes a number of important elements. Responsibilities for policy formulation, program development and direction in each of these are as follows:

(1) NAVOSH Program. The NAVOSH program addresses the maintenance of safe and healthful conditions in the workplace or the occupational environment. It applies to all Navy civilian and military personnel and to operations ashore and afloat. The Director, Environmental Protection, Safety and Occupational Health Division (CNO(N45)) is responsible for developing NAVOSH program policy and guidance and issuing NAVOSH standards under references 2-2 through 2-7. Additionally, CNO(N45) is responsible for program sponsorship of occupational health Navy-wide

(2) Operational Unit Safety

(a) The Director, Submarine Warfare Division (CNO(N77)) is responsible for the safety of submarines, assigned surface ships, deep submergence systems and diving.

(b) The Director, Surface Warfare Division (CNO(N76)) is responsible for the safety of assigned surface ships.

(c) The Director, Air Warfare Division (CNO(N78)) is responsible for naval aviation safety and the safety of assigned surface ships.

(3) Nuclear Propulsion Program Safety. The Director of Naval Nuclear Propulsion program (CNO(N00N)) is responsible for the safety of reactors and associated naval nuclear propulsion plants, and the control of radiation and radioactivity associated with naval nuclear propulsion plant activities per reference 2-11.

(4) Shore Safety. CNO(N45) is responsible for those functional areas of the shore safety program assigned in reference 2-10.

(5) Explosives Safety. CNO(N41) is responsible for the Navy Explosives Safety program including nuclear and conventional weapons.

b. Implementation. Because safety is an inherent responsibility of command, activities shall implement all aspects of the Navy Safety and NAVOSH programs through the chain of command. Echelon Two commanders are responsible for ensuring that the commanders, commanding officers, directors, officers in charge and supervisors at their activities:

- (1) Conduct an aggressive mishap prevention program.
- (2) Assign safety and health responsibilities to qualified personnel.

0206. Specified Support Areas

Reference 2-10 defines programs that support the NAVOSH program. The commanders of the Systems Commands (SYSCOMS), the Chief, Bureau of Medicine and Surgery (BUMED), the Commander, Naval Safety Center (COMNAVSAFECEN) and the Chief of Naval Education and Training (CNET) in coordination with, or at the direction of the respective Office of the Chief of Naval Operations (OPNAV) major program sponsor, shall develop specific procedures and provide instructions for the specified support areas assigned to them in reference 2-10.

a. The Commanders of Headquarters Commands. Reference 2-12 directs the SYSCOM Commanders to provide support consistent with required military capabilities and to ensure that safety and occupational health aspects are considered, designed and engineered into all ships and aircraft, weapons or weapon systems, equipment, materials, supplies and facilities which are acquired, constructed or provided through the SYSCOMS. In so doing, SYSCOM commands shall ensure they apply and comply with system safety engineering and management principles and the provisions in reference 2-9. They shall emphasize the engineering control of known significant occupational health problems, such as noise, asbestos and hazardous chemicals and materials in the overall objective of this effort.

b. BUMED shall:

(1) Provide support to CNO and CMC in all aspects of occupational health, which include occupational medicine (medical treatment and surveillance), industrial hygiene and environmental health, including field support.

(2) Coordinate occupational health actions with cognizant headquarters commands as required.

(3) Assist the headquarters commands, including CNET, in coordinating occupational health training in response to needs and requirements developed in the areas set forth in enclosure (1) of reference 2-13.

(4) Perform appropriate research, development, test and evaluation (RDT&E) in occupational health to determine criteria necessary for establishing personnel exposure limits in naval operational environments.

(5) Maintain a register of personnel occupationally exposed to chemical substances and other hazardous physical or biological stressors.

(6) Act as a clearinghouse for reviewing and disseminating occupational health information and technical guidance for such groups as the American National Standards Institute (ANSI) and the American Conference of Governmental Industrial Hygienists (ACGIH).

(7) Process personnel medical records upon termination of employment, per references 2-5 and 2-6.

(8) Develop a program providing for the periodic occupational health surveillance of both personnel and their working environments, as required by reference 2-4.

(9) Provide for job-related medical support, such as immunizations and emergency medical treatment, per reference 2-4 guidance.

c. COMNAVSAFECEN is responsible for those functional areas of the safety program listed in enclosure (1) to reference 2-10 and shall:

(1) Recommend program objectives, develop procedural guides and prepare supporting implementing directives.

(2) Develop and maintain reporting and recording procedures and systems to provide meaningful statistics concerning accidents, injuries and occupational illnesses for use in evaluating the effectiveness of the programs.

(3) Collect reports and analyze data with special emphasis on cause and trend analysis, and provide results to cognizant commands.

(4) Conduct surveys and investigations as requested by CNO (N45).

(5) Promote the safety program

(6) Maintain a repository of accident, injury, illness and claims data.

(7) Sponsor and coordinate the SECNAV and CNO safety awards.

(8) Provide lessons learned through the accident, injury and illness recordkeeping and reporting systems.

(9) Maintain liaison with the Office of the Judge Advocate General (Navy JAG) in all matters pertaining to the privileged status of accident reports.

(10) Provide management information system (MIS) and automated data processing (ADP) assistance and support to the Naval Inspector General (NAVINSGEN) and the Naval Inspector General Oversight Inspection Unit (NOIU).

(11) Act as a clearinghouse for reviewing and disseminating occupational safety and health information and technical guidance from such groups as ANSI and the National Fire Protection Association (NFPA).

d. CNET. Occupational safety and health (OSH) training and education is an inherent element in each primary and specified program element area. CNET, in coordination with COMNAVSAFECEN and BUMED, shall:

(1) Incorporate OSH educational materials, including applicable provisions of this manual, into the curricula of all appropriate training courses.

(2) Provide specialized OSH training and education to military and civilian personnel as required to support the overall program per reference 2-13.

(3) Prepare and distribute audiovisual aids and other training materials for use in local command OSH training programs.

(4) Serve as the central source for delivery and dissemination of information on OSH training courses.

e. The Naval Inspector General (NAVINGEN). NAVINGEN coordinates the oversight inspection program aspects of the NAVOSH program and conducts oversight inspections of Navy shore activities. NAVINGEN shall apprise higher authorities of program effectiveness determined by the oversight inspection program. NAVINGEN shall maintain close liaison with the NAVOSH Program Manager, who is the Director, Environmental Protection, Safety and Occupational Health Division (N45). NAVINGEN will support the NAVOSH Quality Council's implementation of the NAVOSH Strategic Plan. This effort will include use of the Process Review and Measurement System (PR&MS) to determine NAVOSH program continuous improvement actions and cost avoidance initiatives at the activity level. NAVINGEN shall also maintain close liaison with the President, Board of Inspection and Survey (PRESINSURV) and with cognizant OPNAV sponsors (N4, N45, N76, N77 and N78).

f. President, Board of Inspection and Survey (PRESINSURV). President, Board of Inspection and Survey (PRESINSURV) is responsible for oversight inspections for forces afloat. The effectiveness of the afloat NAVOSH program shall be assessed, as well as the status of corrective actions recommended in prior NAVOSH-related surveys and/or reports. PRESINSURV will maintain close liaison with NAVINGEN for matters of common interest and with the cognizant OPNAV sponsors (N4, N45, N76, N77, and N78).

0207. Activity Programs

For shore activities and commands, commanders, commanding officers, directors and officers in charge shall:

a. Implement PR&MS developed by the CNO NAVOSH Quality Council and contained in appendix 2-B. Conduct an aggressive, continuing OSH program that is integrated throughout the activity and post and disseminate program information to all personnel.

- b. Issue an OSH policy statement adopting and enhancing/expanding the NAVOSH policy established in Section 0104. Issue a new policy statement within 3 months after assumption of command, disseminated to all personnel. Activities shall accomplish this by posting the policy statement on all official bulletin boards and by other means as appropriate, such as publication in base newspapers, new employee indoctrination, safety videotapes, etc. The policy statement shall reflect the commander's commitment to OSH and to programs that prevent or minimize occupational mishaps.
- c. Organize, staff, and maintain an OSH office as required by chapter 3. Regional OSH offices shall be established in accordance with paragraph 0304.
- d. Ensure all personnel are fully aware of their obligations and personal responsibilities to the OSH program. Establish clear lines of accountability.
- e. Establish OSH councils and committees at appropriate command levels per chapter 4 of this manual. Chair the council, or ensure it is chaired by the executive officer or equivalent, and ensure minutes are issued and maintained.
- f. Establish and maintain liaison between the local OSH office and other DoD activities for coordination of specialty functions such as medical, fire, security, etc.
- g. Ensure compliance with the mishap investigation reporting procedures of chapter 14. Review lost time mishaps or ensure they are reviewed as stated in section 1411. Fully investigate all mishaps and take appropriate corrective action. Provide timely reports of findings and actions to NAVSAFECEN.
- h. Ensure that all workplaces are inspected at least annually or more frequently based on the level of risk (see chapter 9).
- i. Establish a hazard abatement program as required by chapter 12.
- j. Establish procedures to protect all Navy personnel from coercion, discrimination, or reprisals for participation in the NAVOSH program. Ensure that employees are aware that they may file, through their appropriate grievance processes, allegations of reprisals for having filed a complaint of unsafe or unhealthy working conditions.
- k. Provide employees and their representatives with access to exposure and medical records per chapter 8.
- l. Develop procedures consistent with Office of Personnel Management (OPM), Naval Personnel Command and PR&MS directives to measure and recognize superior and deficient OSH performance. Performance evaluations shall include personal accountability consistent with the duties of the position and the PR&MS. Include recognition of superior performance or conversely deficient performance, as appropriate.
- m. Establish NAVOSH education and training programs per chapter 6.
- n. Coordinate occupational health and industrial hygiene field support with the cognizant

medical command per chapter 8.

o. Ensure compliance with applicable Navy regulations and Federal statutes governing the control of classified and sensitive unclassified information (refer to section 1106).

p. Establish a comprehensive NAVOSH self-assessment program for the command per chapter 5.

q. Ensure that senior management, middle management and first line supervision support the OSH program to the extent of their authority and responsibility by:

- (1) Setting the example for subordinates
 - (2) Promptly correcting recognized hazards
 - (3) Clearly defining and assigning individual OSH responsibilities to subordinates
 - (4) Documenting OSH performance in evaluation of subordinates in consonance with section 0207.I
 - (5) Ensuring employees receive appropriate OSH training, participating in OSH committees or meetings, and conducting stand up OSH meetings where required
 - (6) Conducting or participating in worksite inspections, including those made by the activity OSH personnel
 - (7) Encouraging safety awareness through incentives and awards programs
 - (8) Receiving training appropriate to their level of responsibility and authority, per chapter 6. NAVOSH orientation training does not need to be repeated with subsequent assignments to other levels of management unless significant OSH-related changes have occurred.
 - (9) Acquiring, maintaining and requiring the use of approved personal protective equipment, approved safety equipment and other devices necessary to protect employees
 - (10) Encouraging a free flow of information and ideas from employees on methods of improving the safety of their workplaces, work practices and work processes. Developing a reward process for outstanding safety contributions.
- r. Review all OSH citations and findings from external authorities (i.e., Occupational Safety and Health Administration (OSHA), NAVINSGEN and internal sources), as warranted, to ensure the underlying causes of the problems are identified and that corrective actions address the underlying causes and not merely the symptoms
- s. Develop and implement cross-reference linkage among employment records, medical records and industrial hygiene surveillance data.

t. Ensure that personnel are aware of the formal procedure for processing written reports of unsafe or unhealthy working conditions per chapter 10. Commands shall include provisions to preserve the individual anonymity of those reporting unsafe conditions when requested. The reporting procedures should encourage employees to make beneficial suggestions as a positive means of correcting potential hazards.

u. Ensure support of Field Federal Safety and Health Councils and coordinate mutually beneficial accident prevention and safety programs with local communities to the maximum extent feasible and per applicable laws and regulations.

v. Designate appropriate officials to consult with representatives of labor organizations recognized under reference 2-14 with respect to the OSH program.

w. State the location(s) where personnel can review copies of the NAVOSH standards, records of safety and health committees and their actions and recommendations, the activity hazard communication plan, and documentation on the command/activity/unit OSH program (shore only).

x. Make available a copy of the activity's annual summary report of occupational injuries and illnesses for the preceding year. Post this summary no later than 45 days after close of the fiscal year, for at least 30 days. In addition to posting, activities may publish it in appropriate written media, such as the activity's newspaper.

y. Post form DD 2272, Department of Defense Occupational Safety and Health Protection Program (appendix 2-A) in prominent locations such as all official bulletin boards (shore only).

z. Establish local agreements to clearly define the respective roles and responsibilities of the BUMED/non-BUMED industrial hygienists, when, where appropriate, due to the nature and complexity of local operations, non-medical activities have established industrial hygiene staffs to assist in implementation of the activity's OSH program.

0208. Individual Civilian and Military Personnel

Commands can only achieve safe and healthful workplaces through the full participation and cooperation of all employees. Accordingly, each employee shall:

a. Comply with NAVOSH standards and all applicable rules, regulations and orders issued under this manual. Violators of NAVOSH regulations or instructions are subject to disciplinary action prescribed in Civilian Personnel Instruction (CPI) 752 (NOTAL) or the Uniform Code of Military Justice. The command shall also consider such actions in personnel performance evaluations (refer to section 0207.I).

b. Report observed workplace hazards following procedures outlined in chapter 10.

c. Immediately report to his/her supervisor injuries or occupational illnesses or property damage resulting from an accident.


Chapter 2

References

- 2-1. SECNAVINST 5100.10H of 15 June 99, Department of the Navy Policy for Safety, Mishap Prevention, and Occupational Health and Fire Protection Programs (NOTAL)
- 2-2. DoD Instruction 6055.1 of 19 Aug 98, DoD Safety and Occupational Health (SOH) Program (NOTAL)
- 2-3. DoD Directive 1000.3 of 29 Mar 79, Safety and Occupational Health Policy for the Department of Defense (NOTAL)
- 2-4. DoD Instruction 6055.5 of 10 Jan 89, Industrial Hygiene and Occupational Health (NOTAL)
- 2-5. SECNAVINST 5212.5D of 22 Apr 98, Navy and Marine Corps Records Disposal Manual
- 2-6. DOD Instruction 6055.7 of 3 Oct 00, Accident Investigation, Reporting and Record Keeping (NOTAL)
- 2-7. SECNAVINST 5211.5D of 17 Jul 92, Department of the Navy Privacy Act (PA) Program
- 2-8. SECNAVINST 5720.42F of 6 Jan 99, Department of the Navy Freedom of Information Act (FOIA) Program (NOTAL)
- 2-9. DOD Military Standard 882C of 19 January 93, System Safety Program Requirements (NOTAL)
- 2-10. OPNAVINST 5100.8G of 2 July 86, Navy Safety and Occupational Safety and Health Program
- 2-11. Executive Order 12344 of 1 Feb 82, Naval Nuclear Propulsion Program (NOTAL)
- 2-12. OPNAVINST 3500.39A of 26 Apr 00, Operational Risk Management (ORM) (NOTAL)
- 2-13. Navy Occupational Safety and Health and Hazardous Material Control and Management Navy Training Plan (NTP S-40-8603D) (NOTAL)
- 2-14. Title 5, United States Code, Chapter 71 (Supp.11 1979) (NOTAL)

Appendix 2-A

DOD Occupational Safety and Health Program

	<p>DEPARTMENT OF DEFENSE SAFETY AND OCCUPATIONAL HEALTH PROTECTION PROGRAM</p> <p>The Occupational Safety and Health Act of 1970, Executive Order 12196 and 29 CFR 1960 require the heads of Federal agencies to establish programs to protect their personnel from job safety and occupational health hazards.</p>
<p>1. The Department of Defense (DoD) designated agency safety and occupational health official is the Assistant Secretary of Defense (Force Management and Personnel).</p> <p>2. The _____ designated safety and occupational health official is: _____ (DoD Component) _____ _____ (Title) _____ (Address)</p> <p>3. The _____ safety and occupational health designee is: _____ (Name of Installation/Facility) _____ _____ (Name) _____ (Title)</p> <p>4. The _____ safety point of contact is: _____ (Name of Installation/Facility) _____ _____ (Name) _____ Telephone Number</p> <p>5. The _____ occupational health point of contact is: _____ (Name of Installation/Facility) _____ _____ (Name) _____ Telephone Number</p>	
HAS THE RESPONSIBILITY TO:	
<p>_____ (Name of Installation/Facility)</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>1. COMPLY with the applicable Occupational Safety and Health Administration (OSHA)/DoD/DoD Component safety and occupational health standards.</p> <p>2. SET UP PROCEDURES for submitting and responding to employee reports of unsafe and unhealthful working conditions.</p> <p>3. ACQUIRE, MAINTAIN, AND REQUIRE the use of approved personal protective equipment and safety equipment.</p> <p>4. INSPECT ALL WORKPLACES with participation by civilian employee representatives to identify potential hazards.</p> <p>5. ESTABLISH PROCEDURES to assure that no worker is subject to restraint, interference, coercion, discrimination, or reprisal for exercising his/her rights under the DoD safety and occupational health program.</p> </div> <div style="width: 48%;"> <p>6. POST NOTICES of unsafe or unhealthful working conditions found during inspections.</p> <p>7. ASSURE PROMPT ABATEMENT of hazardous conditions. Workers exposed to the conditions shall be informed of the abatement plan. Imminent danger corrections must be made immediately.</p> <p>8. SET UP A MANAGEMENT INFORMATION SYSTEM to keep records of occupational accidents, injuries, illnesses and their causes; and to post annual summaries of injuries and illnesses for a minimum of 30 days at each installation/facility.</p> <p>9. CONDUCT SAFETY AND OCCUPATIONAL HEALTH TRAINING for management, supervisors, workers and worker representatives.</p> </div> </div>	
DOD PERSONNEL HAVE THE RESPONSIBILITY TO:	
<p>1. COMPLY with all applicable OSHA/DoD/DoD Component safety and occupational health standards</p> <p>2. COMPLY with _____ _____ (Name of Installation/Facility) policies and directives relative to the safety and occupational health program.</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>3. USE personal protective equipment and safety equipment provided by your installation/facility.</p> <p>4. REPORT hazardous conditions, injuries, illnesses, or other mishaps promptly to your supervisor or to the safety or occupational health point of contact for your installation/facility.</p> </div> </div>	
DOD PERSONNEL AND CIVILIAN EMPLOYEE REPRESENTATIVES HAVE THE RIGHT TO:	
<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>1. HAVE ACCESS to applicable OSHA/DoD/DoD Component standards, installation/facility injury and illness statistics, and safety and occupational health program procedures.</p> <p>2. COMMENT on alternate standards proposed by DoD/DoD Component.</p> <p>3. REPORT AND REQUEST INSPECTIONS OF UNSAFE AND UNHEALTHFUL WORKING CONDITIONS to appropriate officials who include, in order of preference, the immediate supervisor, the safety or occupational health point of contact, the safety and occupational designee for your installation/facility,</p> </div> <div style="width: 48%;"> <p>3. (Continued) for your DoD component, the safety and occupational designee for DoD, and the Secretary of Labor. However, the Secretary of Labor encourages personnel to use DoD procedures for reporting hazardous conditions as the most expeditious means to achieve abatement. The hazard report form provided by your installation/facility should be used for this purpose. Anonymity, when requested, is assured.</p> <p>4. PARTICIPATE in the installation/facility safety and occupational health program. Civilian workers shall be authorized official time to participate in the activities provided by the DoD safety and occupa-</p> </div> </div>	

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the installation/ facility commander, the safety and occupational health designee	tional health program.
OTHER INFORMATION: 1. When the safety or occupational health point of contact for your installation/facility is notified by a worker of a hazardous worksite condition, he/she will ensure an inspection of the work-site and he/she will report the results of the inspection in writing to the worker making the report. 2. Inspector General channels may be used to investigate complaints from either DoD civilian or military personnel concerning alleged acts of discrimination or reprisal due to participation in safety and occupational health activities. For DoD civilian personnel, allegations of reprisal may also be initiated by them	
2. (Continued) in accordance with applicable appeal procedures, or administrative or negotiated grievance procedures. 3. For further information about the installation/facility safety and occupational health program, procedures, standards, committees, Federal laws, or other related matters, contact the safety or occupational health point of contact for your installation/facility as noted on this poster. 4. How well you carry out your safety and occupational health responsibilities will be an important factor in the success of the program.	

DD FORM 2272, NOV 2000

PREVIOUS EDITION MAY BE USED.

Appendix 2-B

NAVY PROCESS REVIEW AND MEASUREMENT SYSTEM

#1 THE MISHAP PREVENTION PROCESS MODEL (30% OF OVERALL RATING)

Mishap Prevention - actions taken to identify and control unacceptable risks.

1. **Compile/Report Mishap and Hazard Data**

- Mishap reports
- FECA data
- Exposure assessments
- Medical surveillance
- Reported hazards
 - Workers
 - Management
 - OSH staff
 - External agents
 - Literature

2. **Analyze Mishap/Hazard Data**

- Frequency
- Severity (human costs, dollar costs, mission impact)
- Exposure potential
- Location
- Responsibility
- Type
- Trends
- Patterns
- Any anomaly

3. **Analyze Significant Processes/Areas** (Various approaches may be employed - Preliminary Hazard Analysis, Systems Safety Review, Job Safety Analysis, Process Safety Analysis, less formal approaches, etc., as appropriate for processes analyzed)

- Hazards
- Causes
- Responsibilities
- Control alternatives

4. **Report Key Data/Analysis to Process Owner**

5. **Process Owners Review Reports**

The Mishap Prevention Process Model - (continued)

6. Identify/Consider Potential Controls
 - Administrative/Programmatic
 - Engineering
 - Process
 - Training
 - PPE
 - Procedural
 - Product substitution
7. Conduct Relative Value Assessment
 - Loss potential
 - Cost
 - Expected benefit
 - Morale implications
 - Feasibility
 - Customer acceptance
 - Public image
 - Labor/management implications
8. Select Alternative(s)
 - Select control(s)
 - Do nothing
 - Prioritize implementing actions
9. Implement Control (s)
 - Issue policy
 - Issue procedures
 - Install barriers
 - Modify facilities/equipment
 - Modify procedures
 - Conduct training
 - Utilize new product
10. Assess Impact of Controls
 - Review data
 - Inspect process/worksites
 - Solicit customer feedback
 - Compare results to expected benefits
11. Modify Control(s) As Needed
 - Select alternative control(s)
 - Modify existing control(s)
 - Eliminate control(s)

Performance Measures for the Mishap Prevention Process

1. Mishap Rates - the mishap rate chosen to measure Mishap Prevention performance is the Injury/illness Incidence Rate (IIR), defined as follows:

- $IIR = (A \times 200,000)/M + C$
 - A = total injuries/occupational illnesses including fatalities, lost/no-lost time cases, first aid cases reported on Form OPNAV 5102/7 (Log of Navy Injuries and Occupational Illnesses)
 - M = the command's military personnel and strength for the reporting period multiplied by 2,000 (Note: 2,000 is the appropriate multiplier only when an annual IIR is being calculated. This multiplier should be adjusted up or down in proportion to the time period in question for any IIR calculations for time periods other than annual. For example, use 1,000 for a 6-month IIR, use 10,000 for a 5-year IIR)
 - C = civilian staffing multiplied by 2000 or the total man hours worked by civilian employees of the command during the reporting period, as provided by the Comptroller
- The IIR score is derived as follows:
 $0.3(100-IIR)=IIR \text{ Score}$

2. Quality Assessment of Command Mishap Prevention Program

Evaluate the command's Mishap Prevention performance by assessing its implementation of specific elements of the Mishap Prevention process model. The process model elements recommended for evaluation, and proposed evaluation methods, are provided below:

- Compile/Report Mishap and Hazard Data -
 1. Is appropriate mishap and hazard data compiled?
 - Injuries/illnesses
 - Property damage cases
 - Stressor exposure
 - Safety hazards
 - Near misses
- A list of possible sources from which the evaluator may gather actual mishap and hazard data for comparison purposes includes:
 1. Clinic logs
 2. Material property damage reports (OSH office)
 3. FECA tables
 4. JAG reports

5. NAVFAC property loss reports
6. Property accountability reports (Controller)
7. Crane accident reports
8. Ships' CAS reports
9. Inspection Reports
10. Employee Hazard Reports (EHR)
11. Abatement logs
12. Industrial hygiene reports

(Evaluate by taking a sample of mishaps/hazards from the above data sources and then confirming the consideration of those mishaps/hazards in the mishap prevention process. Numerical values should then be assigned to this element, based on the number of sample mishap and hazard items actually included in command mishap prevention analysis databases.)

- Analyze Mishap/Hazard Data and Significant Process Areas

1. Do the analyses:

- Occur at an appropriate frequency?
- Provide data at appropriate levels of management responsibility?
- Identify the most frequent and/or severe risks?
- Provide a valid comparison of current performance versus expected/historical performance?
- Provide useful recommendations for performance improvement?
- Provide other useful analysis not listed above?

- Process Owner Response to Analyses

1. Characterize process owner response to reports of mishap analyses as one of the following:

- Unsatisfactory awareness of/response to analyses reports
- Satisfactory awareness of/response to analyses reports
- Takes additional internal analysis/action beyond that suggested by analyses reports

(Evaluate by personal interview with selected process owners, review of process owner documentation, and field confirmation of actions claimed (where appropriate)).

#2 THE REGULATORY COMPLIANCE PROCESS MODEL
(20% OF OVERALL RATING)

Regulatory Compliance - conformance to NAVOSH requirements

1. Determine Regulatory Requirement
 - Review regulations
 - DoD/Navy directives
 - Military exclusions
 - Review, determine if changes needed
 - Legal considerations
 - Regulatory interface
 - Community relations
2. Develop Compliance Strategies
 - Training requirements
 - Feasibility
 - Medical impact
 - Prioritization
 - Time frame for implementation
 - Consequences on non-compliance
 - Difference between new and current requirements
 - System safety review
3. Identify and Provide Resources
 - Organizational structure
 - Cost determination
 - Budgeting
 - Internal
 - Customer cost
 - Facility requirements
4. Execute Compliance Strategy
 - Communicate requirements
 - Training
5. Monitoring
 - Documentation
 - Data analysis
 - Report compliance status
 - Feedback
 - Initiate improvement efforts
 - Confirmation of corrective action

Performance Measures for the Regulatory Compliance Process

- NOIU/NAVOSH Inspection results

#3 THE SUPERVISION PROCESS MODEL (20% OF OVERALL RATING)

Supervision - those actions taken to plan, organize, direct, oversee and evaluate the activities of subordinates and Command personnel to safely accomplish work

The Supervision Process Model incorporates three different but complementary/interrelated components.

Component #1 - Sequential actions/steps associated with the accomplishment of specific jobs/tasks by subordinates.

1. Analyze Tasks

- Identify hazards
 - Physical (mechanical, heat, vibration, noise, location, radiation, etc.)
 - Chemical (hazardous materials)
 - Biological (disease)
- Evaluate hazards
 - Identify personnel at risk
 - Consult involved employees
 - Consult peers/managers
 - Review technical documentation
 - Consult professional staff
 - Draw upon personal knowledge/experience
- Identify measures needed to control/eliminate hazards
 - Engineering
 - Administrative
 - PPE
- Identify OSH compliance requirements
 - Navy
 - OSHA
 - Local documents
 - NAVOSH
- Determine required personal qualifications
 - Training
 - Physical/medical
 - Experience

2. Organize to Safely Accomplish Tasks

- Select qualified personnel
- Determine work sequence
- Coordinate with support organizations

3. Direct the Accomplishment of Tasks

- Communicate objectives to assigned personnel
 - Schedule
 - Interface with other operations

- Location
 - Problem reporting
 - Assign jobs within the task
 - Provide job training
 - Verbal
 - Written
 - Discuss potential hazards
 - Discuss compliance
4. Evaluate Task Performance
- Observe workers
 - Identify process variance
 - Enforce proper implementation of controls
 - Receive feedback
 - From employees
 - From related organizations
 - From customers (internal/external)
 - Assess efficiency of controls
5. Adjust Process As Required

Component #2 - Continuing actions to evaluate the overall performance of personnel over time.

1. Determine General Expectations For Work Unit
- Injury/illness prevention
 - Process improvement
 - Cost avoidance initiatives
2. Set Performance Standards Both Verbally and In Writing
- Objective/quantifiable
 - Measure behavior, not results, at lower levels in the
 - Organization
 - Use subordinates' performance as factor for supervisors
 - Measure positives as well as negatives
3. Acquire Information Needed To Assess Performance
- Inspections
 - Supervisor
 - OSH staff
 - IH surveys
 - Process reviews
 - Mishap data/information
 - Employee self-assessment
4. Assess Performance Against Standards
5. Discuss With Employee

- Strengths
- Weaknesses
- Improvement strategy

6. Document Final Assessment

7. Initiative Reward/Remedial Actions as Appropriate

Component #3 Integration of OSH throughout the Command assess how proactively Command HQ, Command, upper management, supervisors and employees integrate and involve OSH into core business processes.

1. Review requirements

2. Scope of involvement

- meetings/councils/training/strategic planning

3. Level of interface CO has with

- upper management, middle mgmt., workforce and unions
- Assess if Command has an informal CO/Upper Mgt. walk-through of workspaces

4. Command awareness of compensation costs, property damage assessments, mishap rate reductions, etc.

5. Assess upper Echelon strengths, and support/guidance

6. Determine command climate and philosophy related to OSH

7. Evaluate customer/command feedback systems

8. Reduction in accidents due to awareness or improved procedures

9. Determine ownership of processes

Performance Measures for The Supervision Process

1. Presence of OSH Elements in Performance Standards (% coverage and quality of standards) - the following should be used to evaluate the presence of OSH elements in performance standards.

- Is OSH addressed?
- Do the standards address communication of OSH information and expectations to members of the work unit?
- Is performance monitored to determine if OSH requirements and expectations are met
- Do the standards address actions to be taken to improve the OSH performance of the work unit?
- Do the standards require the establishment of OSH standards for all members of the work unit?

(Where commands utilize self-directed work teams in lieu of traditional supervisors, performance standards adopted by self-directed work teams will be evaluated)

2. Assessment of Employee Understanding of OSH Expectations

- Is employee properly using appropriate PPE for the work?
- Can the employee demonstrate an awareness of hazards in the work area, and hazard control measures?
- Is the employee using OSH resources available to report/address hazards (e.g. supervisor, OSH staff, safety committee, EHR, etc.)?

(Evaluate by field observation and interviews of randomly selected employees who perform work operations which expose them to significant potential hazards.)

2. Assessment of OSH Integration Initiatives or Improved Outcome Measures:

- Is higher echelon providing OSH guidance?
- Has the activity asked the next Echelon for guidance (on PR&MS)?
- Is there active OSH interchange of information within the chain (both above and below)?
- Does CO's immediate staff show knowledge of OSH issues?
- Does CO review OSH related reports (i.e., program costs, incident rates, compensation costs)?
- Has Cmd. suite attended OSH training with subordinates or peers?
- Has Cmd. and upper mgt. shown buy-in and open support of the OSH program?

#4 THE TRAINING PROCESS MODEL
(15% OF OVERALL RATING)

Training - conveyance of information to enable personnel to carry out their personal responsibilities safely and in compliance with applicable NAVOSH regulations.

1. Identify Requirements and Needs

- Explicit
 - Required by regulations
 - Required by directives
 - Individual development plan
- Implicit
 - Lessons learned
 - Process improvements
 - Process changes
 - Needed to execute work
 - Labor/management/customer relations
- Type
 - Initial
 - Refresher
 - Job qualification
 - Awareness
- Timing/frequency
 - Before assignment
 - Annual
 - Monthly
 - Other
- Recordkeeping

2. Identify Audience

- Upper-level management
- Mid-level management
- Supervisor
- Worker
 - New
 - Journeyman
 - New assignment
- Customer
 - Tenants
 - Contractors
 - Visitors
- Labor organizations

3. Develop Specific Information to be Delivered
 - Relate to each target audience
 - Limit to applicable requirements for each target audience
4. Identify Media
 - Lesson plans
 - Classroom
 - On-the-job training
 - Programmed instructions
 - Videotape
 - Correspondence courses
 - Interactive computer assisted
 - Stand-up/tailgate meetings
 - Other
5. Assemble Resources Needed to Provide Training
 - Funding
 - Time
 - Media
 - Facilities
 - Qualified instructor
6. Deliver Training
 - Schedule
 - Provide
 - NSETC
 - OSHA
 - College
 - On-the-Job training
 - On-Site training
 - Job training
 - Rate training
 - Correspondence courses
 - Stand-up/tailgate meetings
 - Track completion
7. Evaluate Effectiveness
 - Work site observations
 - Retention testing
 - Short-term
 - Long-term
 - Mishap rate for target accident type
 - Student critique
 - Other feedback
 - OSH office

- Labor organizations
- Managers

8. Modify Training as Required

Performance Measures for the Training Process

1. Matrix Match Against Requirements

- Compile Data Sources
 - Industrial hygiene surveys
 - Military manning documents
 - Command mission/function statements
 - Command mishap experience
 - Command occupation physical qualification statements
 - Etc.
- Determine the following:
 - Does a formal OSH Training Plan exist?
 - Would execution of the plan ensure delivery of all required training?
 - Would execution of the plan ensure delivery of appropriate specific hazard recognition and control training?
 - Is course content documented by formal lesson plans that are approved by appropriate OSH/technical personnel?
 - Is training executed in accordance with the plan?
 - Is the training provided evaluated in terms of:
 1. Appropriateness of course content?
 2. Instructor effectiveness?
 3. Behavior of trainees in the workplace?
 4. Are evaluation results used to improve training?

2. Employee Interface/Challenges

- Compile Data Sources
 - Industrial hygiene surveys
 - Military manning documents
 - Command mission/function statements
 - Command mishap experience
 - Command occupation physical qualification statements
 - Etc.
- For Target Processes/Occupations, Determine if:
 - Employees are accomplishing their work in a safe manner.
 - Employees are aware of job hazards and OSH requirements.
 - Employees are complying with regulatory requirements pertinent to their job assignment.
 - Employee failures are due to: ***
 1. Inadequate training.

2. Employee failure to comply with known requirements.
 3. Other factors. (Lack of tools, time, etc., needed to perform work)
- Employee successes are due to: ***
1. Effective training.
 2. Knowledge/experience not attributable to the command's training program.
 3. Other factors. (Close supervision, reward system, peer pressure, etc).

*** NOTE: For these items, if the failure/success is due to training, utilize the employee observation/interview results to evaluate the TRAINING key process. If the failure/success is due to other (non-training) factors, utilize the employee observation/interview results to support the evaluation of another appropriate key process.

(Evaluate by identifying several appropriate occupations within the command, then observing/interviewing randomly selected employees within each identified occupation or process.)

#5 THE SELF-ASSESSMENT PROCESS MODEL
(15% OF OVERALL RATING)

Self-Assessment - a comprehensive internal evaluation of how an OSH program meets the requirements of its internal/external customers.

1. Identify Program Elements to be Evaluated

- Mishap Prevention
 - Mishap investigation
 - Risk assessment
 - Hazard abatement
- Adequacy of resources (internal/external)
 - OSH staff
 - Funding
 - Medical/HRO support
 - PWC support
 - FISC support
 - Other
- Supervision
 - Management involvement/example
 - Performance evaluation
- Personnel participation
 - Worker input mechanisms
 - Union involvement
 - PPE use
- Training
 - Formal
 - Informal
 - Communication
- Regulatory Compliance
 - All applicable regulations
 - Deficiency abatement
- Injury Cost Control
- Customer Focused Support (OSH support commands only)

2. Develop Assessment Plan for Each Element

- Develop assessment strategy
- Identify element customers and customers needs
- Identify element performance criteria and indicators
- Develop assessment tools/procedures
- Develop assessment schedule
- Determine reporting mechanisms and who receives reports

The Self-Assessment Process Model – (continued)

- Identify and provide for resources needed to assess
 - People
 - Data
 - Time
 - Technical competence
- 3. **Conduct Assessment of Each Element**
 - Conduct/Compile information
 - Analyze
 - Trends
 - Patterns
 - Causes
 - Priorities
 - Actual observed performance vs. desired performance
 - Develop conclusions/recommendations
 - Prepare/submit reports
 - Documentation as required by regulations
 - Reports to appropriate responsible persons
- 4. **Adjust/Improve Self-Assessments**
 - Obtain/Evaluate customer feedback
 - Develop improvements
 - Implement Improvements
 - Advise customers of change

Performance Measures for the Self-Assessment Process

1. **Quality assessment of Command Self-Assessment Program**
 - Has the command established a formal self-assessment process?
 - Is a self-assessment of each key NAVOSH process, adequacy of resources, and personnel participation conducted annually
 - Does the self-assessment include a data-driven analysis of key NAVOSH process trends/patterns?
 - Does the self-assessment identify/quantify the actions and resources needed to correct process deficiencies?
 - Does the self-assessment drive process improvements?
 - Does the self-assessment identify further process improvement opportunities for programs that already meet basic requirements?

(Evaluate by review of current self-assessment documentation.)

#6 THE CUSTOMER-FOCUSED SUPPORT PROCESS MODEL (OSH SUPPORT)
(0-100% - TO BE SCORED SEPARATELY, AS APPLICABLE)

Customer-Focused Support - providing OSH support, services, and guidance that meet customer needs.

1. Identify Your Customers

- Commands receiving service
- Students
- Patients
- Managers within commands
- Workers/employees
- Laboratories
- Contractors
- Your boss

2. Identify Your Customer's Needs (As Perceived by the Servicing Command)

- Requirements (mandated programs)
- Non-disruptive service
- Schedule and frequency
- Reports and documentation
- Usefulness and reliability of products/services
- Cost vs. value
- Consultation with command management
- Responsiveness
- Policy/guidance
- Anticipation of unexpressed customer needs
- Communication of available services

3. Evaluate Current Product/Services

- Policy/guidance
- Schedule and frequency
- Reports and documentation
- Usefulness and reliability of products/services
- Requirements (mandated programs)
- Non-disruptive service
- Cost vs. value
- Consultation with command management
- Responsiveness
- Communication of services available

4. Determine Resources Required to Provide Product/Services

- People
- Funding
- Time

- Consumables
 - Facilities
 - Contracts
 - Support organizations
 - Procedures and policies
 - Training and education
 - Communication and Information Technology
 - Equipment
5. Develop Customer Survey
 - Assess knowledge level of people being surveyed
 - Tailor questions accordingly
 - Develop questions around the following:
 - What do you need from me?
 - What do you do with what I give you?
 - Do gaps exist between what I give you and what you need?
 6. Develop Survey Implementation Plan
 - Determine survey format and delivery method
 - Identify forms and checklists
 - Develop schedules
 - Train surveyors/conduct dry run
 - Refine survey
 7. Conduct Survey
 8. Evaluate Survey Results
 - Determine gaps between product/services provided and the customer's needs/requirements/expectations
 9. Improve Delivery of Products/Services to Better Meet Customer Needs
 - Develop partnership with customer to eliminate problems
 - Provide new services
 - Eliminate Unneeded services
 - Re-prioritize efforts
 - Improve efficiency/effectiveness of current product/service
 - Adjust customer/supplier expectations
 - Identify alternative provider of service
 10. Identify Potential Improvements
 - Customer feedback
 - Data
 - Field Observations
 - Follow-up Survey
 11. Pursue Continuous Improvement of Process
 - Ensure customer satisfaction

Performance Measures for the Customer-Focused Support Process

- Has the command established a formal process for determining customer needs?
- Has the command determined customer needs (as perceived by the servicing command) and evaluated current service?
- Are customer needs surveyed:
 - At least triennially?
 - At least annually?
 - Significantly more often than annually?
 - By written surveys?
 - By meetings/workshops?
- Do customer surveys/workshops/etc. result in the development of initiatives to improve the products or services being delivered?
- Are customers advised of survey results and improvement initiatives planned/undertaken in response to surveys
- Are customers involved in the development of improvement initiatives?
- Are improvement initiatives tracked and making progress toward implementation?
- Is customer feedback solicited concerning the effectiveness of changes implemented in response to customer surveys?

#7 THE INJURY COST CONTROL PROCESS MODEL

(Under development.)

CHAPTER 3

ORGANIZATION AND STAFFING

0301. Discussion

This chapter provides guidance on Navy Occupational Safety and Health (NAVOSH) functional organization, staffing and responsibilities. An effective and dynamic command Occupational Safety and Health (OSH) organization requires a structure that provides all levels of the command with good lines of communication to the commanding officer for OSH matters.

0302. Organization of Occupational Safety and Health (OSH) Organizations at Headquarters Commands

Headquarters commands shall designate an OSH official who will have sufficient authority and responsibility to represent effectively and support the headquarters commander in the management and administration of the headquarters command OSH program. The designated OSH official shall report directly to the headquarters commander. An OSH organization, staffed and organized commensurate with the mission and functions of the command, shall support and report directly to the designated OSH official. An OSH professional shall head the OSH organization. The designated command OSH official shall:

- a. Establish, coordinate, direct and evaluate the effectiveness of NAVOSH policies, plans, programs and procedures.
- b. Serve as the focal point within the command for NAVOSH-related matters.
- c. Provide technical advice, direction and guidance on NAVOSH matters to other commands or bureau organizational elements and to subordinate field activities
- d. Interpret NAVOSH standards and regulations and develop or participate in developing new or revised standards, when appropriate.
- e. Conduct assessments of the effectiveness of the command's overall NAVOSH Program, and those of subordinate commands, and develop plans of action for improving performance in areas identified as needing improvement.
- f. Serve as the headquarters command's representative on safety councils, committees and working groups established by higher authority and the private sector. The OSH official shall serve as technical advisor to cognizant offices of the Chief of Naval Operations (CNO) on NAVOSH-related matters in areas over which the headquarters command is assigned cognizance.
- g. Review illness/injury analyses from command activities to identify and initiate actions to improve the effectiveness of the NAVOSH program and reduce instances of injury and illness.
- h. Foster OSH awareness through appropriate promotional methods and channels of communication.

- i. Ensure adequate consideration of OSH features in the design, purchase or procurement of items over which the command exercises acquisition authority.
- j. Plan, develop, participate and evaluate employee OSH training in coordination with cognizant training groups, offices and organizations.
- k. Review and coordinate budget requirements, requests and program objective memoranda for OSH and coordinate OSH budget submissions, as appropriate. Ensure that the OSH official at each field activity has sufficient authority and responsibility to plan for and ensure funds for the OSH staff, their equipment, materials and the training required to ensure implementation of an effective NAVOSH program.

0303. Organization, Functional Responsibilities, and Staffing Criteria for Shore Activity OSH Organizations

a. Organization. Each shore activity shall have an OSH organization, staffed and organized commensurate with the mission and functions of the command. An OSH professional shall head the OSH organization and shall have the authority, responsibility, and visibility to manage and represent effectively the activity's OSH program. Implementation of the NAVOSH program is considered a command staff level function. Accordingly, the head of the OSH organization shall report directly to the commanding officer of the shore activity.

b. Functional Responsibilities. "Direct Programs" refer to the OSH program areas that an OSH organization performs to support the command or activity of which it is a part. "Indirect Programs" are administrative activities in support of Direct Programs.

(1) For Direct Programs, as minimum core requirements, all OSH organizations shall:

(a) Manage OSH Programs. Plan, direct and administer the activity OSH program using the components of the process review and measurement system to focus efforts in those areas which will yield the best overall outcomes for the commands safety and health program.

(b) Conduct OSH Reviews. Perform and document reviews and evaluations to ensure that appropriate OSH requirements and considerations affect all operations, facilities, material and equipment.

(c) Conduct OSH Inspections. Plan, conduct and document workplace inspections of all buildings, grounds, facilities, materials, equipment, devices, operations and conditions to ensure compliance with applicable policies, laws, regulations and standards. For detailed program information, refer to chapter 9, NAVOSH Inspection Program, and chapter 11, Inspections and Investigations of Workplaces by Federal and State OSH officials.

(d) Abate Hazards. Manage the program for the correction of workplace hazards. For detailed program information, refer to chapter 12, Hazard Abatement Program.

(e) Provide Consulting Services. Provide consulting services to all activity organizational elements and all levels of supervision on OSH principles and technical aspects and their application to employees and workplaces.

(f) Investigate, Report and Record Mishaps. Coordinate the investigation of all mishaps. For detailed information, refer to chapter 14, Mishap Investigation, Reporting and Record-keeping.

(g) Implement Employee Hazard Reports. Implement requirements and procedures for employee hazard reporting. For detailed program information, refer to chapter 10, Employee Reports of Unsafe or Unhealthy Working Conditions.

(h) Analyze OSH Program Effectiveness. Prepare annual self-evaluation(s) of program and program elements following Program Review and Measurement System (PR&MS) Self Assessment Model guidelines contained in appendix 2-B. For detailed information regarding self-evaluations, refer to chapter 5, section 0505.

(i) Attend and Conduct Meetings. Attend, conduct or participate in activity and local OSH council and committee meetings. For detailed information, refer to chapter 4, Councils and Committees.

(j) Promote OSH Training and Education. Coordinate OSH training and educational programs. For detailed program information, refer to chapter 6, Training.

(k) Determine Personal Protective Equipment (PPE) Requirements. Evaluate all workplaces and determine PPE requirements. For detailed program information, refer to chapter 20, Personal Protective Equipment.

(l) Coordinate Hazardous Material Control and Management (HMC&M). Coordinate OSH aspects of the HMC&M program. For detailed program information, refer to chapter 7, Hazardous Material Control and Management.

(m) Coordinate Occupational Health. Coordinate all activity aspects of occupational health matters with the cognizant medical command. For detailed program information, refer to chapter 8, Occupational Health.

NOTE:

If activity personnel actually conduct workplace sampling, this is an additive function. The basic activity function is to coordinate these programs, develop local instructions and ensure compliance with regulations.

In addition, most organizations shall perform core functions in paragraphs 0303.b(1)(n) through (q), as necessary.

(n) Administer the Confined Space Entry/Gas Free Engineering Program. Non-maritime shore OSH organizations administer the Confined Space Entry program. For detailed program information, refer to chapter 27, Confined Space Entry program (Non-Maritime). Maritime shore-based activities administer the Navy Gas Free Engineering program. For detailed information, see NAVSEA S6470-AA-SAF-010.

NOTE:

Where multiple full-time test personnel are necessary (e.g., Public Work Centers) and the OSH organization conducts the testing, organizations shall develop a specific additive to the staffing equation based on the local workload for confined space testing.

(o) Administer the Asbestos Control Program. Coordinate the development and implementation of the Asbestos Control program. For detailed program information, refer to chapter 17, Asbestos Control.

(p) Administer the Respiratory Protection Program. Administer the activity Respiratory Protection program. For detailed program information, refer to chapter 15, Respiratory Protection.

(q) Administer the Radiation Safety Program. Coordinate and/or manage radiation protection and control programs including applicable ionizing and non-ionizing sources (i.e., lasers, radio frequency radiation (RFR), etc.). For detailed information, refer to chapter 22, Non-Ionizing Radiation.

(r) Manage Certain Other Program Elements. The following safety-related programs are not included in the minimum core elements used for determining staffing requirements. The level of application varies greatly among activities, depending on their mission, function, location and support. At activities where these programs have a major impact, organizations should treat them as additive functions requiring additional resources. Activities should determine resource requirements to perform the functions locally or have them performed by commands, based on workload analysis:

1. Motor vehicle and traffic safety
2. Weapons and explosive safety
3. Fire prevention
4. Recreation and home safety
5. Diving safety
6. Mercury control
7. Contractor oversight
8. Industrial hygiene
9. Environmental protection
10. Weight handling equipment safety
11. Compensation program support
12. Systems safety.

(s) Other Considerations. Other considerations in determining staffing requirements include the geography of an activity, the number of locations and the distance between them and sub-units and tenants supported. Geography can have a significant impact on workload where large distances exist between normal work sites and locations of inspections, investigations and evaluations. Organizations must evaluate the degree of support provided tenants and other personnel on and off base in determining staffing needs.

For locations outside the continental U.S. (OCONUS). Activities shall not gap NAVOSH positions for more than 30 days. When possible, activities should identify a relief before transferring the incumbent.

When applicable, perform the additional functions listed in paragraph 0303 b(1)(r). Activities shall treat these functions as additives when determining staffing requirements. In addition, activities must treat any collateral duties assigned to the OSH organization as additive when determining staffing.

(2) For indirect (administrative) programs, all OSH organizations shall:

(a) Supervise Personnel. Supervise personnel, accomplish administrative duties and provide training to personnel supervised.

(b) Provide Administrative and Clerical Support.

1. Provide mail, messenger, receptionist, stenographic, typing, duplicating and supply/fiscal services.

2. Implement an office automation system to include database management, report generation, word processing and records maintenance.

3. Process correspondence.

4. Consult or confer with individuals.

5. Prepare and distribute reports.

6. Maintain publications.

(c) Manage Travel. Travel between work centers and to and from safety seminars, training courses or conferences, when essential to the job.

(d) Hold or Attend Meetings. Attend or conduct meetings, briefings and conferences pertaining to other direct support of the work center.

(e) Maintain Office Space. Maintain individual workspaces in a neat, orderly condition and conduct periodic housekeeping ("field days") as required.

c. Staffing Criteria. Activities with more than 400 employees shall assign, at a minimum, a full time OSH manager and adequate clerical support. The staffing criteria that follow are not mandatory but provide a good method of determining the number of qualified personnel to perform necessary OSH functions. The real measure of adequate staffing is whether all designated functions are per-

formed effectively and strong mishap prevention programs are implemented. Activities shall determine the number of professional (non-clerical) personnel needed to perform the primary functions listed above by the following method:

(1) Use the equation provided below, predicated upon the level of risk by major job hazard category and the number of personnel in each category. Most activities will have more than one job hazard category. The total number of professional personnel needed to perform minimum functions in the OSH organization is the sum of personnel specified for each category. Appendix 3-A explains the job hazard categories. Commands shall evaluate actual needs based on support available from others and number of supported personnel.

(2) The equation for calculating the number of professionals on the OSH staff is:

$$\begin{aligned} &0.0033 \times \text{the first 1200 persons in Category A} \\ + &0.0025 \times \text{the next 800 persons in Category A} \\ + &0.0020 \times \text{the remaining persons in Category A} \\ + &0.0020 \times \text{total number of persons in Category B} \\ + &0.0016 \times \text{total number of persons in Category C} \end{aligned}$$

where $0.0033 = 1/300$ (1 professional per 300 workers), $0.0025 = 1/400$ (1 professional per 400 workers), $0.0020 = 1/500$ (1 professional per 500 workers), and $0.0016 = 1/600$ (1 professional per 600 workers).

(3) An example of staffing using this equation is:

$$\begin{aligned} &900 \text{ employees in Category A requires } 3.0 \text{ staff} \\ + &500 \text{ employees in Category B requires } 1.0 \text{ staff} \\ + &1200 \text{ employees in Category C requires } 2.0 \text{ staff} \\ = &\text{Six professional employees required for office plus clerical staff.} \end{aligned}$$

(4) The number of employees counted in each category includes all who receive full OSH support (tenants and others). The equation does not include partial and part-time support (such as that provided students, reservists and tenants with safety staff). Organizations must account for this separately, based on local workload determinations.

(5) An assistant manager is required for an office with a total staff often or more. The staffing calculation above includes the OSH manager and assistant manager(s).

(6) Base clerical support on workload. All OSH organizations supporting an activity population exceeding 600 need, at least, full-time clerical support.

d. Position Classification Considerations. The OSH organization will have as its head, a fully qualified and trained OSH professional supported by a staff of qualified professionals. Reference 3-1 describes qualification and training requirements for OSH professionals. Classification guidance is provided as follows:

(1) OSH manager positions range from GS-11 up; OSH assistant managers from GS-11 up; specialists and technicians from GS-05 to GS-12 (the journeyman level is GS-11); and clerical support from GS-03 to GS-07. Appropriate military equivalents include Navy Officer Billet Codes (NOBCs) 0862, 2740, 8656, and 8995, from ensign to commander, Navy Enlisted Classifications (NECs) include 9571, SW-6021, and 8301, from E-4 to E-9. Military equivalents shall have acquired additional OSH professional training appropriate to their assignment.

(2) Classification series that apply, but are not inclusive, include:

<u>Position</u>	<u>May Compete</u>
Manager/Assistant/ Specialists	GS/GM-018, 081, 602, 610, 690, 803, 804, 1306, 1320, 1815, 1825, 2125
Technicians/ Other Technical Services	GS-019, 645 699, 1311
Administrative Others as appropriate	GS-318, 303, 326

NOTE:

The staffing criteria in this section replace all previous guides and standards for staffing of OSH organizations.

0304. Regional and Consolidated OSH Organizations

In some cases, it may be more effective and practical to establish a single OSH organization to meet the aggregate requirements of a number of small activities within the same geographic area and/or to support tenants of an installation. Activities shall staff all such consolidated OSH organizations following the criteria described in section 0303.

a. Activities furnishing OSH services and users of those services, shall establish written agreements. The agreement shall specify the services provided. Administrative control over the OSH organization shall rest with the command supplying the service.

b. Activities should not change consolidated OSH organization services without prior negotiations between the activities and/or units receiving services. Organizations shall negotiate agreements on a fiscal year or an as needed basis, at which time adjustments shall be made to take into account differences in size or number of activities serviced, services required and cost of operation of the consolidated OSH organization.

c. It is strongly recommended that regional safety managers attain board certification through either the American Board of Industrial Hygiene or the Board of Certified Safety Professionals. Per section 0606, professional certification is recommended for OSH professionals.

0305. Organization and Staffing of the Occupational Health Function

Integral to the proper establishment of a comprehensive NAVOSH program is a comprehensive occupational health program. Successful occupational health programs require professional supervision and oversight by qualified occupational health professionals. The primary sources of support services are hospitals and medical clinics. The occupational health/industrial hygiene components of those medical activities are responsible for providing complete occupational health support to all commands within their assigned area of responsibility (see chapter 8 for further details).

a. The Preventive Medicine and Occupational Health Division administers the program within the Chief, Bureau of Medicine and Surgery (BUMED). The occupational health and preventive medicine directorate administers the program at the hospital or clinic level. The director shall have direct access to the medical facility commanding officer and/or clinic officer in charge. Industrial hygiene and occupational medicine shall be divisions of occupational health and preventive medicine directorates. As a rule, military industrial hygienists shall provide dedicated service to the operating forces and the fleet, and civilian industrial hygienists shall maintain essential program continuity and provide services to the Navy shore establishment.

b. Functions. Refer to chapter 8.

c. Activities may deliver occupational medical services through a wide variety of organizational structures, ranging from single-physician clinics to multi-physician clinics that are co-located with a hospital or major medical clinic. The organization size affects the distribution of labor among physicians, nurses and other support staff.

d. Occupational Health Staffing Guides and Industrial Hygiene Laboratory Support Policy. Factors influencing the guidance provided below are: previously published guides for similar programs, the anticipated demand for physician services when applicable DoD instructions are fully implemented, and a review of physician-to-population ratios at regional medical commands. The guidance provides a staffing level that allows implementation of all medical components of the NAVOSH Program at a high level of quality consistent with progressive management of the Navy's industrial and fleet support programs. It conforms to the Federal Personnel Manual guidelines for physician staffing in the low-risk category and provides additional staffing for the high-risk category.

(1) Occupational Medicine Staffing Guide. The occupational medicine staffing guide applies to two specific professional categories: occupational health physicians and occupational health nurses. Disciplines contributing to occupational health programs, such as surgical and medical specialties, radiology, audiology, optometry, laboratory and technical or administrative support are not included. Expressed in mathematical notation, the staffing guide for occupational medicine is as follows:

$$MD = 0.0005A + 0.00033B + 0.00025C + 0.000125D + 0.000125E + 0.000125F$$

Where:

MD = required number of full-time physicians

A = population in risk category "A"

B = population in risk category "B"

C = population in risk category "C"

D = population in risk category "D"

E = population in risk category "E"

F = population in risk category "F"

NOTE:

Appendix 3-A describes population categories A through F with examples.

(a) The coefficients in the staffing formula represent the number of staff required to support one employee (e.g., 0.0005 physician for one shipyard employee. The reciprocal of this coefficient expresses the number of employees supported by one physician or nurse (e.g., one physician for 2,000 shipyard employees).

(b) The staffing guide provides one physician for every 2,000 employees in category A, plus one for every 3,000 employees in category B, and one for every 4,000 employees from other activities. The guide provides half as many physicians for mobile populations as provided for the low risk category.

(c) A number of factors influence the required staffing, including local injury and illness rates, past accomplishments of the occupational health program and proximity to definitive care facilities. Local variation from the expected typical situation is likely. Where significant variation exists, make an appropriate adjustment, either up or down, to the staffing level calculated by the guide.

(d) If the total population in categories A, B, C, D, E and F supported by a medical treatment facility is less than 6,000, then activities shall base physician staffing on achieving minimum required capability and enhancing efficiency using a combination of physicians and occupational health nurses. In larger medical treatment facilities, where the calculation indicates the need for three or more physicians, activities shall substitute medical providers (physician's assistant or nurse practitioner) at the rate of four alternates for three physicians (recognizing that when these substitutions are made, some additional physician time is needed for supervision).

(e) When the population served is geographically distributed in groups smaller than 6,000 employees or where the occupational health staff of the region is dispersed among numerous small medical treatment facilities, activities shall use the guide to indicate fractions of full-time equivalents. Medical treatment facilities serving 400 or more employees should have a full-time nurse, and those serving 2,000 or more employees should have a full-time physician. Rounding the staffing calculation at the medical treatment facility level rather than at a superior medical command level may yield a larger staffing requirement. The need for a specialized capability at remote locations justifies the additional requirement, even if met on a standby basis. This guide defines a remote location as one requiring more than 30 minutes of travel time from the nearest regional medical treatment facility during peak traffic load.

(f) Each medical treatment facility should have access to at least one physician with recognized credentials in occupational medicine, such as board certification by the American Acad-

emy of Occupational Medicine. However, the complement of physicians in an occupational health clinic may include family practice physicians, internal medicine physicians and General Medical Officers. Appendix 3-B provides a recommended grade level structure for direct support occupational medicine physicians at the line activity organizational level.

(2) Occupational Health Nurse Staffing Guide. Determine staffing for occupational health nursing staff by the following formula:

$$\text{OHN} = 0.0006A + 0.0004B + 0.0003C + 0.00015D + 0.00015E + 0.00015F$$

Where:

OHN = required number of occupational health nurses

A = population in risk category "A"

B = population in risk category "B"

C = population in risk category "C"

D = population in risk category "D"

E = population in risk category "E"

F = population in risk category "F"

(3) Industrial Hygiene Staffing Guide. The cognizant medical command shall base the industrial hygiene staffing on the total military and civilian personnel supported. Staffing for industrial hygienists in BUMED organizations that directly support line activities can be determined based on the following formula:

$$\text{IH} = 0.002A + 0.0008B + 0.0004C + 0.0004E + 0.0004F + 0.004L + S$$

Where:

IH = the required number of industrial hygiene staff

A = population in risk category "A"

B = population in risk category "B"

C = population in risk category "C"

E = population in risk category "E"

F = population in risk category "F"

L = number of activities (locations) supported

S = support to ships that designate the claiming BUMED organization (Navy Environmental and Preventive Medicine Unit (NAVENPVNTMEDU) or clinic) as primary source of industrial hygiene support, calculated per formula below:

$$S = 0.87CV + 0.87AS + 0.35LH + 0.17CG + 0.13DD + 0.087(FF + AM + AO + AT) + 0.044SS + 0.022OT$$

Where:

CV = number of ships designated CV or CVN

AS = number of ships designated AS

LH = number of ships designated LHA, LHD or LPH

CG = number of ships designated CGN

DD = number of ships designated DD, CG or DDG

FF = number of ships designated FF or FFG

AM = number of ships designated LPD, LSD, LST, AGF or LCC

AO = number of ships designated AO, AOE, AE, AOR or AFS

AT = number of ships designated ARS or ATS

SS = number of ships designated SSN or SSBN

OT = number of ships not in any category listed above

(a) This guide applies to all medical regions. However, unique circumstances may require increases or decreases in the staffing derived from its use. Where such adjustments are appropriate, the local medical region should define and justify them. Possible adjustment factors include the following:

1. Additional staff should be added to support remote facilities where the travel requirement exceeds 5 percent of total staff time.

2. Additional staff may be justified to place full-time industrial hygienists in remote facilities where the calculated requirement exceeds 0.5 person but is less than 1.0 person. The added increment would greatly enhance the program's effectiveness by reducing unproductive travel and enabling much quicker response time for evaluating intermittent operations, investigating employee complaints and conducting special surveys to monitor unusual or exceptional hazards.

3. Additional staff likely will be required to provide engineering design review and to develop operating procedures for major facility expansion efforts. Additional staff may also be required to support the Engineering Field Divisions (EFDs) in facilities acquisition and review of construction plans and specifications for the elimination or engineering control of health hazards per chapter 5.

(b) Most regions will require at least one individual with skills and experience expected at the GS-12 level. Regions that support activities with a wide range of industrial settings, including major industrial facilities or highly complex research and development environments, will require technical positions at the GS-13 level. Supervisory positions at the GS-13 or GS-14 level are appropriate, depending on the size and complexity of the region's programs. Appendix 3-C provides recommended rank or grade levels.

Organizations with more than 18 individuals generally include several divisions, and may apply this recommended grade level structure at the division level.

(4) Industrial Hygiene Officer Career Path. This is the established career path for industrial hygiene officers:

<u>Tour</u>	<u>Assignment/Grade</u>
1	Assignment to a shore medical command or NAVENPVNTMEDU for training (O-1 to O-2).
2	Assignment to an aircraft carrier as assistant safety officer (O-2 to O-3).
3	Assignment to a shore medical command, NAVENPVNTMEDU, Marine Aircraft Wing, Force Service Support Group or Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN) (O-3).
4	Assignment to a tender as safety officer. Assignment to Naval Sea Systems Command (COMNAVSEASYSCOM) ship/submarine design or acquisition support (O-3 to O-4).
5	Assignment to Type Command (TYCOM), NAVENPVNTMEDU, Navy Environmental Health Center (NAVENVIRHLTHCEN), Submarine Training Facility (SUBTRAFAC), Shore Medical Command or Commander, Naval Safety Center (O-4 to O-5).
6	Assignment to Fleet Commander In Chief (FLTCINC) staff, officer in charge, commanding officer, or director of a naval medical or line activity, President, Board of Inspection and Survey (PRESINSURV), NAVINSGEN, BUMED or NAVENVIRHLTHCEN (O-5 to O-6).

(5) Industrial Hygiene Laboratory Support

(a) Recommendations made by Navy industrial hygienists, based on laboratory analysis of collected air samples, affect the health of employees. Laboratory results are used in the determination of appropriate respiratory protection for any given job or operation, the design or modification of equipment and engineering controls and to document worker exposure. Biological samples, such as blood and urine collected by clinical personnel, serve to evaluate the uptake of such toxic substances as lead and mercury.

(b) Analytical techniques shall conform to those recommended by the Occupational Safety and Health Administration (OSHA) or the National Institute for Occupational Safety and Health (NIOSH). The laboratory shall also be capable of preparing sample media and performing any other related chemical or instrumentation work in support of the industrial hygienist.

(6) Industrial Hygiene Laboratory Resource Guide

(a) Navy Industrial Hygiene Laboratory Support Policy. Considering the Navy's projected needs for industrial hygiene laboratory support and the recommendations of occupational health program managers, the Navy shall maintain not more than three large consolidated laboratories, each to serve a specific geographical area. Each consolidated industrial hygiene laboratory (CIHL) shall be accredited by the American Industrial Hygiene Association (AIHA) and maintain such accreditation. Each laboratory shall have, as a minimum, three gas chromatographs, two atomic absorption spectrophotometers, two microscopes, a UV-visible spectrophotometer, a high pressure liquid chromatograph and a zinc protoporphyrin analyzer.

(b) Activities shall staff laboratories to meet the expected sample analysis requirements of Navy industrial hygienists, based on extrapolation of the trend in requested determinations performed by each laboratory. Activities may use the following formula to estimate the staffing needed:

$$y = 1.0 + 0.00025x$$

Where:

y = the number of laboratory staff (professional staff, including chemists and technicians)

x = number of laboratory determinations to be completed each year

Activities that analyze environmental samples (such as indoor air quality or air toxics) should not use this formula to calculate staffing for analyzing these samples. Until experience is gained with such analyses, which may be different in time requirements from industrial hygiene samples, activities may justify their staffing for these analyses based on evaluation of commercial prices for similar analyses.

(c) Appendix 3-D provides an appropriate grade level structure for a given staff size. Each laboratory shall also have one clerical billet to handle sample receipt, logging and administrative correspondence.

(d) BUMED has CIHLs at the following activities:

1. Navy Environmental and Preventive Medicine Unit Two, Norfolk, VA
2. Navy Environmental and Preventive Medicine Unit Five, San Diego, CA
3. Navy Environmental and Preventive Medicine Unit Six, Pearl Harbor, HI.

(e) Medical activities having an industrial hygienist on staff shall maintain or establish minimum laboratory capabilities for local usage to include the following:

1. Asbestos identification and quantification using polarized light microscopy (PLM) and phase contrast microscopy (PCM)

2. Gravimetric sample analyses using a micro- or semi-micro-balance
3. Calibration equipment necessary to calibrate industrial hygiene sampling equipment
4. Equipment and supplies necessary to prepare sampling media. The above capabilities, not offered by the CIHLs, shall be available locally. The CIHLs perform analyses requiring staff chemists (i.e., chromatography and spectrophotometry). Each activity with a local asbestos laboratory shall enroll it in the proficiency analytical testing (PAT) program operated by the AIHA. Each local laboratory shall participate in the Asbestos Bulk Identification Proficiency Testing Program that is contractor-operated. Local laboratories may only perform asbestos analyses when they have achieved proficient ratings in each of the testing programs.

(f) BUMED, through the NAVENVIRHLTHCEN, shall ensure appropriate audit control and overall centralized management of the CIHLs.

(7) Emergency Industrial Hygiene Laboratory Support. Some samples will require quick analysis because of the hazardous toxicants involved and potentially costly curtailment in production. In such situations, activities may use local commercial testing laboratories if:

- (a) Such laboratories are accredited by AIHA and have a proficient rating through the PAT Program for the particular analyses of interest, (i.e., metals, organic solvents, free silica or asbestos).
- (b) The forms required by Section 0802.5 are used.
- (c) Copies of the laboratory results are mailed to NAVENVIRHLTHCEN.

Chapter 3

References

3-1. NAVEDTRA 10076A, "Career Development Plan for Safety and Occupational Health and Industrial Hygiene Personnel."

Appendix 3-A

Job Hazard Categories

Review activity manpower authorization lists to identify all jobs by hazard exposure category as listed below. The number of personnel performing jobs in each category are totaled and entered into the equation in section 0303c. Most activities will have employees in more than one category. The following workcenter descriptions are examples of the type of work performed in each job hazard category. They are not all inclusive:

<u>JOB HAZARD CATEGORY</u>	<u>HAZARD LEVEL</u>	<u>WORKCENTER DESCRIPTION</u>
A	HIGH	<p><u>INDUSTRIAL OPERATIONS</u>: Machine shop (cutting, grinding, machining, drilling, planing and shaping metal); arc and acetylene welding; foundry operations (work with molten metals); electroplating; abrasive blasting; solvent cleaning operations; high-voltage electrical work; power plants (i.e., steam or electrical generation); ship repair work; aircraft rework; and spray painting.</p> <p><u>MEDICAL</u>: Radiation sources, communicable diseases, contaminated medical substances and handling chemicals.</p> <p><u>HEAVY EQUIPMENT OPERATIONS AND MAINTENANCE</u>: Heavy equipment operations (bulldozers, cranes and earth movers); repair and maintenance of large motors, engines and materials handling equipment (i.e., tower and bridge cranes).</p> <p><u>TOXIC/HAZARDOUS MATERIALS HANDLING</u>: Work involving use or cleanup of acids, corrosives, reactives, pyrophoric materials, carcinogens, pesticides, radioactive material and other high hazard chemicals or materials (asbestos, PCBs, etc.).</p> <p><u>CONSTRUCTION</u>: Construction or repair of piers, warehouses and buildings to include all building trades (i.e., painters, carpenters, sheet metal workers, plumbers, electricians, roofers, tilers, masons, concrete workers and work on scaffolding, communication towers or other high risk work).</p> <p><u>OTHER</u>: Work involving extreme exposures to heat, cold, diving/salvage, heights or other high risk work.</p>

<u>JOB HAZARD CATEGORY</u>	<u>HAZARD LEVEL</u>	<u>WORKCENTER DESCRIPTION</u>
B	MODERATE	<u>SUPPLY/TRANSPORTATION</u> : Movement of materials in storage facilities using forklift trucks, overhead cranes and powered hand trucks, where materials are stacked above 3 feet in height. Manual material handling/lifting (i.e., assembly line, exchanges and warehouse operations). <u>MECHANICS</u> : Repair and maintenance of automotive vehicles, building maintenance and aircraft maintenance. <u>RDT&E</u> : Engineers, test mechanics and laboratory personnel involved in the research, development, evaluation and test of systems.
C	LOW	<u>ADMINISTRATIVE/CLERICAL/CLASSROOM</u> : Those positions that involve primary work in an office environment but may include visits to worksites for inspection or evaluation.
D*		<u>SHIPBOARD PERSONNEL</u> : Those positions that involve working on board ships at sea.
E*		<u>OPERATING FORCES</u> : Those positions on shore and at sea that involve the operation and support of aircraft operations.
F*		<u>STUDENTS</u> : Positions allotted to personnel who are receiving formal, offsite training in excess of 5 working days.

NOTE:

- * Job Hazard Categories D, E and F can be Hazard Level HIGH, MODERATE or LOW depending upon the specific duties assigned to the individual.

<u>JOB HAZARD CATEGORY</u>	<u>HAZARD LEVEL</u>	<u>ACTIVITY</u>
A	HIGH	NAVSHIPYD, SRF, SIMA, AIMD, NAVAVNDEPOT, PWC, WEAPONS/ORDNANCE STATION, MEDICAL/DENTAL ACTIVITIES, CONSTRUCTION ACTIVITY (NMCB, NMOBU, NMCBR), SURFACE WARFARE CENTERS, TEST CENTER OR LAB, SUB IMA.
B	MODERATE	NAS, NAF, NAVSTA, NAVCOMTELSTA, NCTAMS, NAVCOMMU, FISCs, TRADE SCHOOLS (only those involving the teaching of industrial operations, repair or maintenance operations).
C	LOW	NAVPRO, HEADQUARTERS, and all activities with primarily office or classroom work.
D		Personnel serving onboard CV, CVN, AS, LHA, LHD, LPH, DD, CG, DDG, FFG, LPD, LSD, LST, LCC, AO, AOE, T-AE, -TAO, T-AFS, T-ARS, ATS, SSN, SSBN and other ships not designated.
E		Wings, air squadrons.
F		Students at FTCs, NTCs, OCS, Aviation OCS and midshipmen at U.S. Naval Academy.

NOTE:

- * Job Hazard Categories D, E and F can be Hazard Level HIGH, MODERATE or LOW depending upon the specific duties assigned to the individual.

Appendix 3-B

Distribution of Occupational Health Physicians by Rank/Grade Level

Rank/Grade	Total Number of Physicians														
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
06 / GS-15	1	1	1	1	1	1	1	1	1	1	1				
05 / GS-14	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1
04 / GS-13	4	4	3	3	3	2	2	2	2	2	2	2	2	1	
03 / GS-12	8	7	7	6	5	5	4	3	3	2	1	1			

NOTE:

The GS-12 positions are to be filled with experienced non-physician health care providers such as physician assistants and nurse practitioners working under an established preceptor. Physicians without appropriate training or experience are not suitable for working independently in the occupational health field.

Appendix 3-C

**Suggested Rank/Grade Level Structure
for Industrial Hygiene Support**

Rank/Grade	Number of Persons																	
	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
05/GS-14	1	1	1	1	1	1												
05/GS-13	1	1	1	1	1	1	1	1	1	1	1	1						
04/GS-12 ^a	3	3	3	3	3	3	3	2	2	2	2	1	1	1	1	1	1	1
03/GS-11 ^b	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	1	1	0
02/GS-09	4	4	3	2	2	2	2	2	1	1								
01/GS-07	2	1	1	1	1													
GS-05	4	4		4	3	3	3	3	3	2	2	2	2	1	1	1		
Clerical Support ^c	4	4	4	3	3	3	3	2	2	2	2	2	1	1	1	1	1	1
<p>Notes:</p> <p>^a GS-12: Considered a non-supervisory journeyman level industrial hygienist.</p> <p>^b GS-05 to GS-11: Billets may be either for industrial hygienists or industrial hygiene technicians (mix to be determined at the local level). GS-09 is considered a non-supervisory journeyman level for industrial hygiene technicians and GS-11 could be a technical supervisor.</p> <p>^c Represents recommended clerical support based on the table above.</p>																		

Appendix 3-D

**Suggested Grade Level Structure for
Consolidated Industrial Hygiene Laboratories**

Rank/Grade	Size of Staff (professional billets)								
	12	11	10	9	8	7	6	5	4
05/GM-13 chemist	1	1	1	1	1	1	1	1	
04/GM-12 chemist	3	3	3	2	2	2	2	2	2
03/GS-11 chemist	2	2	2	3	2	2	1	1	1
02/GS-09 chemist	2	1	1	1	1	1	1	1	1
01/GS-05, 06, 07 chemist	2	2	2	1	1	1	1		
GS-05, 06, 07 technician	2	2	1	1	1				
GS-04 technician									
Each laboratory should also have one clerical billet to handle sample receipt, logging and administrative correspondence.									

CHAPTER 4

COUNCILS AND COMMITTEES

0401. Discussion

a. Activity occupational safety and health (OSH) committees and councils provide opportunities for various groups and individuals to express multiple viewpoints and interests. Their purpose is to identify, define and assess OSH issues, problems and needs and recommend corrective measures. New or revised policies, procedures and practices may develop from these recommendations to improve the effectiveness of the Navy Occupational Safety and Health (NAVOSH) program.

b. OSH councils or committees have three basic functions:

(1) Create and maintain an active interest in OSH.

(2) Serve as a means of communications regarding OSH.

(3) To provide program assistance to commanding officers, including proposing policy and program objectives.

0402. OSH Councils, Committees and Total Quality Leadership Boards Ashore

a. The Federal Advisory Council on Occupational Safety and Health (FACOSH) acts in an advisory capacity to the Secretary of Labor to assist in carrying out his/her responsibilities. The Council consists of 15 members appointed by the Secretary and includes representatives of Federal agencies and labor organizations representing Federal employees. (Such labor organizations, for representation, require at least five members.) The Deputy Under Secretary of Defense (DUSD) Environmental Security (ES), assisted by the designated officials from each component service, represents Department of Defense (DoD) interests on this council. Navy units proposing items for review by the council must submit them through the Chief of Naval Operations (CNO)(N45).

b. Field Federal Safety and Health Councils exist in many metropolitan areas, functioning on a local level as FACOSH functions at a headquarters level. These councils consist of representatives of local area Federal agencies. The Navy supports these councils, and encourages local Navy officials to participate on local councils. The Navy shall support the operation of local councils by making available, where appropriate, facilities for meetings, speakers and the use of OSH educational resources (films, libraries, etc.).

c. DoD chose not to establish an OSH committee that conforms to the provisions of reference 4-1 at the national level. Instead, it established a Safety and Occupational Health Committee under the provisions of reference 4-2. DUSD (ES) staff chairs this Council, which includes representatives from all the military departments and major defense agencies. The Assistant Secretary of the Navy (Installations and Environment) (ASN(I&E)) and CNO (N45) represent the Navy.

d. Depending upon size, organization and mission, if considered necessary or desirable, major commands (headquarters level or regional level) may establish OSH councils composed of both military members and civilian employees.

e. At the activity level, the commanding officer, executive officer, or equivalent, shall establish and chair OSH councils. Commanding officers shall appoint members in writing, either by letter to an individual or by title or position, in a local instruction. Membership shall include civilian and military personnel representing key organizational elements at the activity, as well as safety and health professionals. Civilian employees shall be represented on the council. Many local labor-management agreements contain provisions on employee representation. The requirement for an OSH council can be met by any formally established activity management board or council that addresses OSH issues, even if it also addresses other issues, as long as such boards/councils meet the basic intent and criteria of this chapter.

(1) If the activity OSH manager attends routinely scheduled department head (staff) meetings or personally briefs the CO/XO on a recurring basis, where safety items can be discussed in a timely manner, only one formal annual meeting is required. Otherwise, the council shall meet annually or more frequently as needed. The activity OSH organization shall retain minutes on file for a minimum of 3 years.

(2) The council develops agendas and action items based on the nature of the activity, its scope of operations and its hazard or mishap experience. Subject matter discussed by the council will include OSH goals, OSH program improvement plans, mishap prevention experience, requirements and initiatives, compliance issues and hazard abatement. The OSH office shall develop proposed agendas and presentations for the council and ensure meetings are scheduled.

f. Activities with industrial or other hazardous operations may also organize additional OSH committees at the supervisory and/or shop level. When such sub-level committees are formed, activities shall make provisions for their communication with the activity OSH council. Activities may use process action teams (PATs) as alternatives to supervisory and non-supervisory OSH committees.

g. Installations with fewer than 100 employees are exempt from the requirements of this section. However, heads of such activities shall ensure an open line of communication exists for all employees on OSH matters, and use captain's calls, handouts, local newsletters and other methods, as appropriate, for communication.

0403. Federal Safety and Health Conferences

Attendance and participation, by Navy OSH personnel, in regional and national OSH conferences are strongly encouraged. Where commands sponsor regular OSH seminars or workshops, commanders or commanding officers should consider possible benefits derived from scheduling such meetings in conjunction with a regional Federal Safety and Health Conference.

0404. NAVOSH Quality Council

a. CNO (N45) established the NAVOSH Quality Council to promote NAVOSH Program strategic thinking and planning.

b. The council shall consist of representatives of CNO(N454) (chairperson), the fleet Commanders in Chief, the Bureau of Medicine and Surgery (both headquarters and field activities), the Systems Commands, the Naval Sea Systems Commands, the Naval Air Systems Command, the Naval Facilities Engineering Command, the Naval Supply Systems Command, Commander Military Sealift Command, the Chief of Naval Education and Training, and Commander, Naval Reserve Force as members. Representatives from the Naval Inspector General, President, Board of Inspection and Survey, the Navy Environmental Health Center,

the Naval Occupational Safety and Health Environmental Training Center and the Commander, Naval Safety Center will act as advisors to the council.

c. CNO (N45) tasked the NAVOSH Quality Council with the development, maintenance and implementation of the NAVOSH Strategic Plan.

d. The Council shall meet semi-annually at a location agreed upon by the membership.

Chapter 4

References

4-1. Executive Order 12196, Occupational Safety and Health Programs for Federal Employees (NOTAL)

4-2. DoD Instruction 6055.1 of 19 Aug 98, DOD Safety and Occupational Health Program (SOH) (NOTAL)

CHAPTER 5

PREVENTION AND CONTROL OF WORKPLACE HAZARDS

0501. Discussion

Section 19(a) of the Occupational Safety and Health Act (OSHAct) requires government activities to provide all Federal employees with a safe and healthful place of employment. To fulfill this requirement, the Chief of Naval Operations (CNO) directs each level of command to establish and maintain an effective hazard control program. The first method to be followed in hazard control is preventing hazards through the design process of systems, equipment and facilities. The command designing the equipment, systems or facilities is responsible for design safety.

To minimize hazards in the workplace, commands shall identify hazardous conditions through workplace inspections (discussed in chapter 9), employee hazard reports (discussed in chapter 10), and industrial hygiene survey reports (discussed in chapter 8). They shall promptly eliminate or control all identified safety and health hazards, subject to priorities based upon the degree of risk posed by the hazards. The preferred method of hazard abatement is through application of engineering controls or substitution of less hazardous processes or materials. The next preferred method is the use of administrative controls, possibly in conjunction with personal protective equipment (PPE). Total reliance on PPE is acceptable only when all other methods are proven to be technically and/or economically infeasible. This chapter discusses the basic principles of hazard control and assigns responsibility for implementing hazard abatement actions.

0502. Principles of Hazard Control

Safety professionals and industrial hygienists are specialists with training and experience in recognition, evaluation and control of workplace hazards. They shall be thoroughly familiar with potential hazards created by various materials, equipment and operations used in Navy facilities. They shall also be aware of special designs required by Navy Occupational Safety and Health (NAVOSH) standards to mitigate certain hazards. The following sections discuss some of the principles applied to prevent or mitigate workplace hazards.

a. Substitution. Activities may reduce the risk of injury or illness by replacement of an existing (or intended) process, material or equipment with a similar item having more limited hazard potential.

(1) Examples of process substitutions may include:

- (a) Brush painting instead of spray painting to reduce inhalation hazards
- (b) Welding instead of riveting to reduce noise levels.

(2) Equipment changes may include:

(a) Use of electric motors rather than internal combustion engines for indoor operation to eliminate potential carbon monoxide exposures

(b) Use of safety cans in place of bottles to store flammable solvents, presenting less of a fire hazard.

(3) Examples of material substitution include:

(a) Switching from methylene chloride to citrus-based formulas for paint stripping to reduce risk of injury to the liver and kidneys of exposed workers

(b) Replacing sand with synthetic abrasives in abrasive blasting cabinets to minimize the silicosis hazard associated with exposure to free silica dust.

Activities shall exercise care in any substitution to ensure that the substitute materials are technically acceptable and they avoid introducing a new or unforeseen hazard.

b. Isolation. Activities may control hazards by using isolation. Isolation is the placing of an appropriate barrier or limiter between the hazard and an individual who may be affected by the hazard. Isolation includes using physical barriers, time separation or distance. Examples include machine guards, electrical insulation, acoustical containment, semi-automatic equipment that does not require constant attendance (time separation) and remote controlled equipment.

c. Ventilation. Activities may control potentially hazardous airborne substances by ventilation, using one of two methods:

(1) Diluting the concentration of the substance by mixing it with uncontaminated air

(2) Removing the substance at its source or point of generation.

The first of these methods is termed general ventilation or dilution ventilation; the second is called local exhaust ventilation. Local exhaust ventilation is generally the preferred and more economical method of hazard control. Properly used, however, general ventilation can be very effective for the removal of large volumes of heated air or for the removal of low concentrations of low toxicity contaminants from minor and decentralized sources. Activities shall design, operate and maintain ventilation systems per the principles outlined in references 5-1 through 5-4.

d. Administrative Control. Activities may also control hazards administratively. This method of hazard mitigation depends on effective operating practices that reduce the exposure of individuals to chemical or physical hazards. These practices may take the form of limited access to high hazard areas, preventive maintenance programs to reduce the potential for leakage of hazardous substances or adjusted work schedules that involve a regimen of work in high hazard and low hazard areas. As an administrative control, adjusted work schedules are appropriate only when an activity recognizes the hazard has an occupational exposure limit below which nearly all workers may experience repeated exposure without adverse effects. The amount by which the 8-hour time weighted average-occupational exposure limit may be exceeded for short periods without injury to health depends on a number of factors such as the nature of the contaminant, whether or not the effects are cumulative, the frequency with which high concentrations occur and the duration of such periods. Activities shall take all factors into consideration in determining whether a hazardous condition exists and whether or not excursions from the limit are permitted.

NOTE:

Exposure limits, such as permissible exposure limits (PELs) established by the Occupational Safety and Health Administration (OSHA), or Threshold Limit Values (TLVs) established by the American Conference of Governmental Industrial Hygienists (ACGIH) are intended for use in the practice of industrial hygiene and are to be interpreted and applied only by a person trained in this discipline.

e. Personal Protective Equipment (PPE). Activities may also control hazards by using PPE. This method of hazard control is least preferred because personal protective devices may reduce a worker's productivity. In addition, it is the only method of control that does not reduce levels of contaminants in the workplace. Nevertheless, there are instances where adequate levels of risk reduction cannot be achieved through other methods and personal protective devices must be used, either alone or in conjunction with other protective measures. Specific PPE and situations where it may be used are described throughout this manual.

0503. Application of Hazard Control Principles

a. Occupational Safety and Health in the Acquisition Process. Reference 5-5 requires that Program Managers (PM) for Major Defense Acquisition Programs develop a programmatic environment, safety and health evaluation at the earliest possible time in the acquisition process. This evaluation describes the PM's strategy for meeting environment, safety, and health requirements during system construction, operation, maintenance, and disposal. PMs responsible for the acquisition of Navy weapons systems, facilities, and support equipment or major modifications to existing weapon systems, facilities or equipment shall perform a safety and health evaluation as described in reference 5-5. This evaluation shall identify and evaluate occupational safety and health hazards, define risk levels, and establish a process that will manage the probability and severity of all hazards associated with the development, use, and disposal of these systems, facilities and equipment. These hazards shall be managed consistent with mission requirements, and management efforts employed shall be cost-effective. The safety and health hazards to be managed include any conditions that create a significant risk of death, injury, acute or chronic illness, disability, and/or reduced job performance of personnel who will produce, test, operate, maintain, or support the system, facility or equipment. Each management decision to accept the risks associated with an identified hazard shall be formally documented.

Navy PMs shall establish a hazardous material control and management program that ensures appropriate considerations are given to eliminating and reducing the use of hazardous materials in construction, maintenance, operation and disposal processes. They shall manage the selection, use, and disposal of hazardous materials to incur the lowest cost required to protect human health and the environment over the system's facility's, or equipment's life-cycle. Where use of a hazardous material cannot be avoided, the PM shall develop and implement plans and procedures for identifying, minimizing use, tracking, storing, handling, and disposing of such materials.

b. Design Reviews. In many instances facility design engineers are not totally familiar with all potential health hazards created by various materials, equipment and operations used in Navy industrial facilities, nor are they aware of the special design considerations required to control these hazards. To ensure that appropriate hazard control techniques are applied, cognizant industrial

hygienists and safety professionals shall participate in a review of plans and specifications for facility projects, including both special projects and military construction projects (see section 0506d). Reviewers shall consider, appropriately influence the design, and engineer safety and occupational health aspects into all facilities that are acquired or constructed for use by Navy employees. Design engineers shall ensure that projects involving potential health hazards, such as toxic materials, radiation, noise, or other health hazards, shall follow established principles of industrial engineering (i.e., references 5-2 through 5-4 and 5-6 through 5-9). Commercial software is available to assist design engineers in the process of identifying safety and health requirements. COMNAVFACENGCOM can provide guidance in obtaining the software.

c. Operating Procedures. Activities shall include appropriate health and safety requirements in standard operating procedures or similar directives that are issued to direct the manner in which work is performed. Originators of instructions that affect productivity shall integrate instructions that affect well being of workers to achieve organization goals in both areas with minimal conflict or confusion. Originators of directives that involve work with potential hazards shall coordinate with cognizant safety and health personnel to ensure that they have considered applicable NAVOSH requirements.

d. Purchasing/Contracting Procedures. Activities can avoid many hazards by incorporating appropriate safety and health hazard control principles and requirements into specifications for purchased equipment/material and contracts that involve work at Navy facilities. Where Navy facilities develop specifications for purchases/ contracts, the activity organizations responsible for purchase requests, contracts and engineering design specifications shall coordinate with cognizant OSH personnel. This will ensure that: NAVOSH requirements are considered in specifications; contractor operations do not compromise the safety and health of Navy personnel or NAVOSH regulatory compliance at the involved Navy facility; and contractor operations are compatible with any concurrent/co-located Navy operations. It also ensures an appropriate exchange of information as required by OSHA regulations for multi-employer worksites.

e. Interim Hazard Abatement Measures. Activities shall use immediate, temporary hazard abatement measures during the time needed to design and implement permanent hazard control measures. Where engineering controls are not immediately applicable, administrative controls and/or PPE are appropriate for use as interim hazard abatement measures.

f. Permanent Hazard Abatement. Engineering control methods are the preferred method of hazard control, followed by administrative controls and PPE. Activities shall use feasible engineering controls to reduce hazardous exposure, even when only partial reduction of exposure is possible through engineering methods. They shall apply two criteria to determine whether engineering controls are feasible. First, a control is technologically feasible if it is available off-the-shelf or if technology exists which can be adapted to the hazard in question. Second, a control is economically feasible if it can be shown that the cost of the control is justified by the benefit it produces. On the other hand, if the expected reduction of the hazard through implementation of an engineering control is insignificant in terms of increased protection and the cost of implementing the control is great, then the control is economically infeasible.

0504. Development of Hazard Control Recommendations

Activities shall consider the following possible actions when recommendations are developed for prevention or reduction of hazards:

- a. Avoiding, eliminating, or reducing deficiencies by engineering design, material selection or substitution
- b. Isolating hazardous substances, components and operations from other activities, areas, personnel and incompatible materials
- c. Incorporating fail-safe principles to prevent a catastrophic injury to personnel, damage to the equipment, or inadvertent operation of critical equipment
- d. Relocating equipment/components so that personnel access during operation, maintenance, repair or adjustment does not result in exposure to hazards, such as chemical burns, electrical shock, electromagnetic radiation, cutting edges, sharp points or toxic atmospheres
- e. Providing suitable warning and notes of caution concerning required personnel protection during operation, assembly, maintenance and repair instructions
- f. Providing distinctive markings on hazardous components, equipment or facilities
- g. Requiring use of PPE when other controls do not reduce the hazard to an acceptable level
- h. Monitoring exposure to ensure that engineering controls effectively reduce the hazard
- i. Training employees to recognize hazards and take appropriate precautionary measures.

0505. Occupational Safety and Health Program Self-Assessment and Improvement Plans

Each headquarters command and all field activities shall perform a comprehensive self-assessment of the command NAVOSH program at least annually following Program Review and Measurement System (PR&MS) Self Assessment Model guidelines contained in appendix 2-B. Based on the results of the assessment, each headquarters command and all field activities shall develop and implement plans of action to address program areas in need of improvement. The activity OSH council, where established, shall review and concur with self-assessments and improvement plans and shall review the progress achieved in implementing improvement actions at least annually. For activities not requiring an OSH council, the commander, commanding officer, or officer in charge shall review and approve the annual self-assessment and improvement plans. For headquarters commands, the designated Safety and Health Official shall review and approve the annual assessment and improvement plans.

a. The activity self assessment shall include, as a minimum, a review of mishap statistics and analysis data, - inspection records, hazard reports and risk assessments, - evaluations of compliance posture and the industrial hygiene exposure assessment reports outlined in chapter 8. Headquarters commands will provide additional guidance as necessary to their subordinate activities on conducting self-assessments of the NAVOSH program. The assessment of headquarters NAVOSH programs shall determine the effectiveness of meeting headquarters NAVOSH program requirements as outlined in chapter 3 section 0303.

b. Activities shall develop specific improvement strategies for each area identified as needing improvement. For each strategy, activities shall define performance or measurement standards and establish target completion dates.

c. CNO requires self-assessment improvement plans for all activities and for each headquarters command (except for exclusively administrative headquarters commands without subordinate activities). Headquarters commands shall submit their plans to CNO (N45) within 45 days of the beginning of the fiscal year.

0506. Responsibilities

The control of OSH hazards is the inherent responsibility of each command with specific responsibilities to apply controls assigned to the command's supervisory levels. The following are assigned responsibilities for directing and supervising an effective OSH hazard control program.

a. Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Assist the Deputy Chief of Naval Operations (DCNO) (Logistics) in carrying out OSH program responsibilities in matters of hazard control.

(2) Determine, validate and establish health criteria and standards.

(3) On a continuing basis, identify equipment, facilities and materials in Navy systems, as well as processes, procedures and work practices, which may adversely affect the health of all Navy employees to ensure health risks are recognized and evaluating corrective measures taken.

(4) Provide technical advice for occupational health education in applicable training curricula and conduct specialized training in occupational health.

(5) Perform research identifying and controlling health hazards related to occupational exposures.

(6) Review and evaluate the effectiveness of occupational health policies and procedures and recommend appropriate actions to the CNO.

(7) Provide occupational health assistance to requesting activities.

(8) Assist in reviewing plans and specifications for facilities construction projects to identify and control potential health hazards as requested.

(9) Assist in reviewing the programmatic ESH evaluation of new systems during the design and operational test and evaluation phases in the acquisition process.

b. Commanders of Headquarters Commands shall:

(1) Assist the DCNO (Logistics) in carrying out program responsibilities in the area of hazard control.

(2) On a continuing basis, identify and evaluate (in coordination with BUMED), safety and health exposure in naval systems, equipment and material affecting the safety and health of Navy employees ashore.

(3) Identify and develop, in coordination with appropriate commands, manpower and material requirements in support of the control of OSH conditions ashore.

(4) Ensure that safety and occupational health problems associated with the development, production and disposal of new equipment and materials are recognized and that provisions are made in the development process for their control.

(5) Ensure that systems safety engineering and management principles are applied during research, development, test, evaluation, production and acquisition of equipment, facilities and material. Ensure that OSH professionals are included in IPPD teams and that comprehensive programmatic ESH evaluations are performed at appropriate phases in the acquisition process.

(6) Provide technical and managerial assistance to subordinate activities on hazard control measures.

(7) Provide subordinate activities with a systematic approach to conduct the annual self-assessment of the NAVOSH program, including desired key measures of effectiveness.

c. Activity Commanders, Commanding Officers and Officers in Charge shall:

(1) Monitor the hazard control program on a continuing basis including engineering, maintenance, management policy and supervisory control to ensure the identification and elimination of hazards.

(2) Apply procedures for OSH control across the design/engineering/installation/operations/maintenance/disposal interface ensuring the integration of a dynamic hazard control program consistent with operational and NAVOSH requirements.

d. Naval Facilities Engineering Command, Engineering Field Divisions and Activities should establish a Facility System Safety Working Group (FSSWG) to review facility designs for new military construction (MILCON) projects ensuring hazards are identified and controlled. The FSSWG should include the procuring activity safety manager, industrial hygienist, environmental engineer, planner, user and Naval Facilities Engineering Command Engineering Field Division (EFD) safety engineer. The FSSWG should provide the EFD with a list of hazardous operations that are of concern and review the control methods that will be used. The EFD Safety Engineer should

coordinate with the working group to determine adequacy of controls. The FSSWG should track hazard and risk resolution, conduct pre-occupancy inspections and assist the EFD construction safety engineer to verify installation of the required controls as stated by the designers.

Chapter 5

References

- 5-1. DOD Military Standard 882C of 19 January 96, System Safety Program Requirements
- 5-2. DoDI 5000.1, The Acquisition System of 23 Oct 00 and DoD 5000.2-R of 15 Mar 96
- 5-3. Industrial Ventilation, A Manual of Recommended Practice, American Conference of Governmental Industrial Hygienists, Inc., P.O. Box 453, Lansing, MI 48902, (NOTAL)
- 5-4. American National Standards Institute (ANSI), Z9.2-2001, American National Standard for Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems, (NOTAL)
- 5-5. DODI 5000.2-R of 4 Nov 96, Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs (NOTAL)
- 5-6. Military Handbook - Industrial Ventilation Systems, MIL-HDBK-1003-17C (NOTAL)
- 5-7. 29 CFR 1910.16, Occupational Safety and Health, Adoption and extension of Federal Standards, Effective Dates
- 5-8. Compendium of Materials for Noise Control. National Institute for Occupational Safety and Health, Robert A. Taft Laboratories, Cincinnati, OH, May 1980. DHEW (NIOSH) Publication No. 80-116 (NOTAL)
- 5-9. Noise Control, A Guide for Workers and Employers. U.S. Department of Labor, Occupational Safety and Health Administration, Office of Information, 1980 (NOTAL)

CHAPTER 6

TRAINING

0601. Discussion

a. This chapter provides requirements, guidelines and recommendations for occupational safety and health (OSH) and hazard communication (HAZCOM) training necessary for employees to perform their work in an occupationally safe and healthful manner. Adherence to safe operating practices and procedures cannot be assured unless there is a clear and defined knowledge of the job, its potential hazards and of the strategies necessary to perform the job properly and prevent mishaps. To attain this type and level of knowledge, a well-developed and coordinated training effort keyed to all levels and types of personnel is required. Properly applied OSH training can change behavior and lead to not only mishap reduction but also performance improvement.

b. Activities shall design, provide and tailor OSH training programs to the level of responsibility of the individual so as to instruct individual employees to perform their work in a safe and healthful manner. As a minimum, the training shall meet the requirements of reference 6-1, Subpart H, and shall provide personnel with sufficient knowledge for their effective participation in the activity's OSH program.

c. The Occupational Safety and Health Administration (OSHA) regulations require employers to train their employees on the specific hazards and safe work practices for the hazardous material (HM)/chemicals they use in the workplace. The regulations include training requirements for personnel involved in hazardous material control and management (HMC&M) and personnel who must handle hazardous material or hazardous waste (HW) (see chapter 7).

0602. Shore Training Programs

Appendix 6-A provides minimum OSH training for personnel assigned ashore. Similarly, appendix 6-B provides HAZCOM training requirements. A listing of courses offered by NAVOSHENVTRACEN that meet the requirements of this instruction can be viewed on the NAVOSHENVTRACEN website at www.norva.navy.mil/navosh

a. Management Personnel. Commands shall provide management personnel with sufficient OSH training to enable them to actively and effectively support OSH programs in their specific areas of responsibility. This training shall include:

(1) An overview of appropriate statutes

(2) An in-depth examination of management's responsibilities in relation to the activity's OSH program. Ensuring that an aggressive and continuing OSH program is implemented throughout the activity is the general emphasis for this aspect of management level training. Training topics shall include compliance procedures, mishap costs and prevention strategies, and performance standards and evaluation.

(3) A review of Navy policy on all relevant aspects of NAVOSH. A broad understanding of the material addressed in this manual is essential.

(4) An examination of activity OSH program goals and objectives. Training shall also include a review of local mishap experience, trends and reduction target areas.

(5) An overview of current Chief of Naval Operations (CNO) emphasis programs.

b. Supervisors and Employee Representatives

(1) Supervisory personnel are defined as military personnel, E-5 or above, and civilian personnel who give direction to one or more military and/or civilian personnel. Activities shall provide training for supervisory personnel and employee representatives that include introductory and specialized courses to enable them to recognize unsafe and unhealthful working conditions and practices in the workplace.

(2) Activities shall provide supervisory personnel with training that includes the development of skills necessary to manage their OSH programs at the work unit level. These management skills require the training and motivation of subordinates in the development of safe and healthful work practices and involve the integration of occupational safety with job training. Activities shall ensure that training for supervisory personnel meets the requirements of reference 6-1, Subpart H and also includes OSH performance measurement (both in terms of mishap/hazard prevention and individual employee/supervisor performance), hazard identification and analysis, enforcement of NAVOSH standards, accident investigation, the use and maintenance of personal protective equipment, and HMC&M.

(3) Activities shall provide newly appointed supervisors with OSH training as soon as possible but no later than 180 days after becoming a supervisor. Electronic training methods are acceptable.

c. Non-Supervisory Personnel

(1) Activities shall provide OSH training to non-supervisory personnel that includes specialized job safety and health training appropriate to the work performed by the employees. This training shall include an examination of the relevant NAVOSH standards, an analysis of the material and equipment hazards associated with the worksite and standard operating procedures (SOPs) for specific tasks. Activities shall also provide instructions on employee rights and responsibilities under relevant OSH statutes, regulations, and the NAVOSH program.

(2) OSH offices shall direct specialized training for non-supervisory personnel to the individual's worksite. OSH offices shall ensure that employee training is conducted with input and direction from the workplace supervisor.

(3) Activities shall make arrangements to provide training to all new personnel as close to the time of assuming their responsibilities as possible. The initial training provided for new employees shall include:

(a) Command and/or local policy on occupational safety and health

(b) Work unit policy on occupational safety and health

- (c) Individual responsibility for safety and health
- (d) Employee reporting procedures for hazardous operations/conditions
- (e) Awareness of hazards common to the individual's worksite, trade, occupation or task
- (f) Specific hazards of chemicals/materials used in the workplace and the activity's HAZCOM plan
- (g) An introduction to the local occupational health program, including how to obtain occupational medical assistance, obtain routine medical evaluations and procedures to follow in case of occupational illness or injury
- (h) Personal protective equipment requirements for the job.

d. Safety and Occupational Health Personnel. Activities shall ensure that safety and occupational health personnel are trained through courses, laboratory experience and field study to perform the necessary technical monitoring, consulting, testing, inspecting and other tasks that are required of OSH professionals.

(1) OSH managers shall establish and implement individual development plans (IDPs) for each OSH professional. They shall use reference 6-2 as guidance in planning training for personnel identified. The NAVOSHENVTRACEN, Norfolk, VA, is the primary source for formal NAVOSH classroom training.

(2) As a minimum, OSH managers shall include the following courses in IDPs for OSH professionals: *NAVOSH Assessment Tools and Strategies*, A-493-0089; *Introduction to NAVOSH (Ashore)*, A-493-0050; *General Industry Standards*, A-493-0061; *Electrical Safety Standards*, A-493-0033; *Introduction to Hazardous Materials (Ashore)*, A-493-0031; and *Introduction to Industrial Hygiene*, A-493-0035.

NOTE:

OSH managers shall include in IDPs provisions for completing the core courses listed above. See reference 6-2 for instruction on preparation of IDPs.

(3) Personnel conducting formal OSH training (courses providing 2 or more hours of classroom training) shall complete a formal instructor training course offered by CNET or equivalent training/experience as approved by the NAVOSH manager.

e. Collateral Duty Safety Personnel

(1) Activities shall provide training to personnel to enhance the performance of their duties as specified by Navy programs within the nature and scope of the activity's operations.

(2) As a minimum, military and/or civilian personnel assigned collateral duty responsibilities for safety management shall satisfactorily complete the NAVOSHENVTRACEN course, *Intro-*

duction to Navy Occupational Safety and Health (Ashore), A-493-0050, or an equivalent course (as determined or approved by the cognizant Echelon Two headquarters) prior to their assumption of NAVOSH duties.

(3) OSH managers shall prepare individual development plans (IDPs) for collateral duty safety personnel per the guidance provided in reference 6-2 and shall address training necessary to accomplish assigned duties.

f. First Aid and Cardiopulmonary Resuscitation (CPR) Training Requirements

(1) The activity commanding officer shall provide first aid and/or CPR training to those personnel who require it, due to the nature of their work and responsibility. The OSH manager shall:

- (a) Identify those personnel who require such training.
- (b) Ensure that training is conducted for those personnel identified in section 0602f(1)(a).
- (c) Ensure maintenance of appropriate records or documentation, as required by this chapter.
- (d) Coordinate development of procedures and requirements to ensure position descriptions are modified to include the requirement for training and administering CPR as a condition of employment, where necessary.

(2) As a minimum, activities shall review the following categories of personnel to identify specific individuals or job positions required to administer first aid and/or CPR:

- (a) Emergency response teams
- (b) Fire department personnel
- (c) Security personnel
- (d) Medical provider(s)
- (e) Safety and industrial hygiene personnel
- (f) Electrical power plant, power distribution, electrical and electronics personnel
- (g) Supervisors of above personnel or of personnel whose jobs pose comparable risks or risk of severe injury
- (h) Personnel whose jobs pose comparable risks to above personnel or who work at remote sites.

(3) The primary source of training should be through the American Heart Association facilitator located at Navy hospitals and clinics. The American Heart Association course of instruction is free to Navy personnel through the Navy Military Training Network by the Chief, Bureau of Medicine and Surgery (BUMED). The American Red Cross is another recognized CPR training certification source. First aid training may be through the BUMED hospitals/clinics or through nationally recognized consensus standards training developed by the American Red Cross for Basic and Advanced First Aid.

(4) Activities shall obtain refresher training as necessary to maintain current certification of the trained personnel.

NOTE:

Personnel undergoing this training should use mouthpieces in CPR as personal protective equipment to prevent exposure to bloodborne pathogens.

0603. OSH Training for Forces Afloat

The shore establishment provides both logistic and training support to forces afloat. The Navy encourages fleet units to attend special topic training applicable to local geographic area programs on OSH and HMC&M when they are available and/or appropriate. Reference 6-3, chapter A7, and reference 6-4 provide specific details on forces afloat training requirements.

0604. Educational and Reference Materials

Educational and promotional materials such as posters, films, technical publications, pamphlets and related materials are useful in promoting the reduction and prevention of workplace-related accidents and illnesses. Navy activities shall maintain and subscribe to appropriate materials as an integral element of the NAVOSH program.

a. Reference Library. Each Navy activity shall maintain a suitable safety and health reference library appropriate to the size and functions of the activity.

b. Norfolk Regional Electronic Media Center. Training modules and lessons guides to support training topics required for supervisors and non-supervisors are available from the NAVOSHENVTRACEN homepage at www.norva.navy.mil/navosh/. Current training videotapes and interactive multimedia instructions (IMIs) may be ordered via the Defense Automated Visual Information System's (DAVIS) website at <http://dodimagery.afis.osd.mil/dodimagery/davis/>.

c. National Safety Council Material. Activities may make arrangements to purchase National Safety Council educational and promotional materials through a Federal Supply Schedule contract and local funding. Activities shall use Schedule Title: FSC Group 76, Part 1 to purchase various OSH-related publications, posters, periodicals and films.

d. Information Sources on Hazardous Materials

(1) The Department of Defense (DoD) Hazardous Material Information System (HMIS) provides information on the safe use, transportation, handling, storage and disposal of HM. In-

formation is designed to educate personnel on the safe use and storage of HM, protective equipment and emergency treatment. Personnel shall refer questions on the HM program to:

Commanding Officer
Navy Environmental Health Center
620 John Paul Jones Circle, Ste. 100
Portsmouth, VA 23708-2103
Telephone: (757) 462-5536
DSN 253-5536
FAX: (757) 445-7330

or

Commander
Naval Supply Systems Command
P.O. Box 2050
5450 Carlisle Pike
Mechanicsburg, PA 17055-0791

(2) A variety of materials are available to assist naval activities in implementing HM and HAZCOM programs. Sources of instructional material include a DoD/Federal Agency Hazard Communication Training Program (see appendix 6-B); manufacturer's material safety data sheets (MSDSs); product labels; and technical publications, such as the National Institute for Occupational Safety and Health (NIOSH) criteria documents, OSHA regulations and publications and various commercial subscription services. See chapter 7 for additional information on HAZCOM.

e. Other Material. Various periodicals (such as Ashore, the Navy's official shore safety magazine) are available from the Naval Safety Center (Code 74), 375 A Street, Norfolk, VA 23511-4399, (757) 444-3520, ext7256. Ashore as well as other publications are available on the Naval Safety Center's website at www.safetycenter.navy.mil/. Occupational Hazards magazine is available at no cost from Penton Media Inc., 1100 Superior Ave., Cleveland, Ohio 44114-8245, (216) 696-7000. Applicable portions of the Federal Register are also helpful in updating information for training programs.

NOTE:

Citation of specific educational or reference material does not constitute approval of, or an endorsement of the publication. Rather, it is intended to provide an example of the type of publication.

0605. Recordkeeping (Shore Activities)

Naval activities' OSH offices shall ensure maintenance of training records for 5 years. For military personnel, the OSH office shall record training in the Service Record following applicable regulations. Copies of official training records may accompany personnel transferred within the Navy. Activities' OSH offices shall make the records accessible to authorized personnel involved in safety, occupational health and the management and administration of HM/HW.

a. The minimum required recordkeeping data for individuals trained includes the following:

Name
Organization
(code/shop)
Job title

b. For each training session or course an individual completes, the following data is needed:

Course Date(s)
Course Title
Instructor's Name
Description and/or Reference to Lesson
Plan

c. For each training course, the activity shall implement a means to determine the effectiveness of the training. This may take the form of end-of-course testing, follow-up testing, feedback systems, etc.

d. OSH offices shall maintain copies of lesson plans used for local training classes.

0606. Professional Certification

Certification of individuals in their professional specialty is highly desirable and fully supported by the U.S. Navy. Commanders of local commands should encourage personnel to obtain professional certification, such as certified safety professional (CSP), certified industrial hygienist (CIH), certified occupational health and safety technologist (OSHT), certified occupational health nurse (COHN) and certification by the American Board of Preventive Medicine in occupational medicine (ABPM). Local commands shall support the efforts (within funding capabilities) for the certification of their staff by providing funding for preparatory courses and attendance at meetings/courses for the purpose of maintaining certification. NAVOSHENVTRACEN offers CIH, CSP or CHMM computer study programs for those individuals preparing for the certification examinations.

0607. Responsibilities

a. Deputy Chief of Naval Operations (DCNO) (Logistics) (N4) shall establish policy for, and resource NAVOSH and HMC&M training programs.

b. Naval Inspector General (NAVINSGEN) and President, Board of Inspection and Survey (PRESINSURV) shall include evaluations of NAVOSH training programs as a part of all inspections.

c. Chief of Naval Education and Training (CNET) shall perform those duties identified in section 0206d as well as:

(1) Direct, coordinate, monitor and evaluate the adequacy and effectiveness of NAVOSH and HMC&M training.

(2) Implement assigned actions in the NAVOSH and HMC&M Navy Training System Plan (NTSP).

(3) Ensure NAVOSH and HMC&M courses are listed in the Catalog of Naval Training (CANTRAC), NAVEDTRA 10500.

(4) Coordinate with the Occupational Safety and Health Administration Training Institute (OSHATI) to provide OSH professional development training per appendix 6-C.

d. Commanders of Headquarters Commands shall:

(1) Establish programs to provide OSH training to personnel under their authority. To encourage efficient use of resources and avoid duplication of effort, commanders shall utilize existing programs in other commands, other DoD components, OSHA and other Federal agencies wherever practical. In the event other service, agency or contract training is used, the local activity remains responsible for recordkeeping.

(2) Submit to the NAVOSHENVTRACEN by 1 September each year, via the chain of command, a listing of command NAVOSH training requirements for occupational safety and health personnel. The listing shall identify courses and/or subject matter by recommended delivery location and anticipated number of command attendees. The listing may include prioritized training requirements considered necessary to comply with standards.

e. Commanders, Commanding Officers, Directors and Officers in Charge shall:

(1) Identify local OSH training requirements and sources for training appropriate for personnel and operations under their cognizance.

(2) Accomplish OSH training consistent with the activity needs and the requirements of this chapter as set forth in a local written training plan.

(3) Maintain local OSH training records.

Chapter 6

References

6-1. 29 CFR 1960, Basic Program Elements for Federal Employee OSH Programs and Related Matters Section 1960.28, "Employee Reports of Unsafe/Unhealthful Working Conditions."

6-2. NAVEDTRA Publication 10076A, *Career Development Program* for Safety and Occupational Health and Industrial Hygiene Personnel (NOTAL).

6-3. OPNAVINST 5100.19D of 5 Oct 00, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL).

6-4. Navy Occupational Safety and Health and Hazardous Material Control and Management
Navy Training Plan (NTSP S-40-8603D) (NOTAL).

Appendix 6-A
Occupational Safety and Health
Training Requirements

Type of Training	Top Management Personnel	Supervisory Personnel & Employee Reps.	Non-Supervisory Personnel	Collateral Duty OSH Personnel	Full-Time OSH Profs.
NAVOSH Orientations***	CH-6, Section 0602a	CH-6, Section 0602b	CH-6, Section 0602c	CH-6, Section 0602e	
Hearing Conservation (when applicable)		Initial and annual refresher IAW CH-18	Initial and annual refresher IAW CH-18		
Asbestos Hazards (when applicable)		Initial and annual refresher IAW CH-17	Initial and annual refresher IAW CH-17		
Respiratory Protection (when applicable)		Initial and annual refresher IAW CH-15	Initial and annual refresher IAW CH-15		
Lead (when applicable)		Initial and annual refresher IAW CH-21	Initial and annual refresher IAW CH-21		
Man-Made Vitreous Fiber (when applicable)		Initial IAW CH-26	Initial IAW CH-26		
Exposure Monitoring				CH-8	CH-8
Hazardous Material	See appendix 6-B	See appendix 6-B	See appendix 6-B	CH-7	CH-7
Confined Space Entry		CH-27	CH-27	CH-27	CH-27
Safety & Occupational Health Topics (as applicable)	Monthly (as appropriate)	Monthly *	Monthly *		
Professional Development (as applicable)				4 CEUs/ equivalent year**	8 CEUs/ equivalent year**
Personal Protective Equipment (PPE) (when applicable)		Initial IAW CH-20	Initial IAW CH-20		
Laser Safety Training		Initial and annual	Initial and annual		

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Type of Training	Top Management Personnel	Supervisory Personnel & Employee Reps.	Non-Supervisory Personnel	Collateral Duty OSH Personnel	Full-Time OSH Profs.
(when applicable)		refresher IAW CH-22	refresher IAW CH-22		
Ergonomics (when applicable)		Initial IAW CH-23	Initial IAW CH-23		
Energy Control (when applicable)		Initial IAW CH-24	Initial IAW CH-24		
Weight Handling (when applicable)		Initial and annual refresher IAW CH-31	Initial and annual refresher IAW CH-31		

NOTES:

NOTE: THE HOURS/CONTINUING EDUCATION UNITS (CEUs) GIVEN ABOVE ARE RECOMMENDED AND NOT MANDATORY EXCEPT WHERE SPECIFIED ELSEWHERE IN THIS MANUAL. THE MEASURE OF SUCCESS OR COMPLIANCE IS KNOWLEDGE AND UNDERSTANDING OF SUBJECT MATTER, NOT LENGTH OF TRAINING. OFF-THE-SHELF OSH VIDEO TRAINING TAPES AND COMPUTER-BASED OSH TRAINING PROGRAMS ARE TO BE USED ONLY AS SUPPLEMENTAL TRAINING TOOLS SINCE THESE TRAINING AIDS DO NOT NECESSARILY MEET ALL TRAINING REQUIREMENTS ESTABLISHED IN THIS CHAPTER OR BY OSHA.

* Cover various topics applicable to employees including mishaps, compensation, MSDSs, work procedures, smoking, stress, plans and goals, radiation, etc. The OSH supervisor can provide these at "stand-up" safety meetings at industrial activities, safety stand-downs or through routed hand-outs/publications in offices. Formal classroom training is not required, however, where meetings or informal classroom training are conducted, document training by roster with subject, date, instructor and attendees; electronic media can be used to document such training. For non-industrial (office) activities or personnel, the OSH supervisor should use monthly or periodic "captain's call" or other meetings or methods to distribute information to promote OSH.

** Continuing Education Unit: One Continuing Education Unit (CEU) is awarded for each 10 contact hours of instruction. One and one tenth CEUs is generally equivalent to one college course credit hour. For Certified Industrial Hygienists: 5 certification maintenance (CM) points (or 1 week per year) are required to maintain certification. For Certified Safety Professionals: 5 points per year are required for Continuation of Certification (COC). For CEU courses, 1 CEU equals 1 COC point and for non-CEU courses, 3 hours of instruction equals 1/4 COC point. (Activities should provide other occupational health professionals with appropriate levels of professional training.)

*** All new employees regardless of their position require NAVOSH orientation training.

Appendix 6-B
Hazard Communication Training

This appendix provides guidelines for implementation of HAZCOM training at the local level. HAZCOM training is required to orient all personnel to the HAZCOM program as discussed in chapter 7 and training for personnel occupationally exposed to hazardous material. Activities shall tailor the latter training to individual jobs and specific exposures. The OSHA HAZCOM Standard does not establish time requirements for training, but instead depends upon employee knowledge of the standard, the HAZCOM program plan, chemical hazards on the job and safe performance of the job. Activities shall use that knowledge as the indicator of program effectiveness and compliance with the Standard. DoD has developed a HAZCOM training program which meets OSHA requirements. The program, entitled *The Department of Defense Federal Hazard Communication Training Program*, consists of seven videotape lessons (DoDFHCTP 3/4 Videotape 505215DN), a trainers guide (DoD 6050.5-G-1 of April 88) and a workbook for employees to complete in conjunction with the videotape lessons (DoD 6050.5-5-W of April 88). The videotapes are available from Navy audio-visual libraries and centers.

Category of Activities Personnel	HAZCOM Training
Top Management	Initial
Supervisors and Employee Reps *	Initial and annual refresher plus spill response & emergencies for supervisors
Non-supervisory Personnel *,**	Initial plus OJT and refresher by supervisor, as required
Emergency Response (Supervisors and Workers), HW Spill, Handlers & Cleanup Personnel	See 29 CFR 1910.120 and OPNAVINST 5090.1B

* For personnel occupationally involved with the use of or exposure to HM. All training must be accomplished prior to exposure to HM.

** OJT must include appropriate review of chemicals used such as review of Material Safety Data Sheets (MSDSs). Stand-up safety meetings can be used for this purpose. Retain records per section 0605.

Appendix 6-C
Occupational Safety and Health Administration Courses for OSH
Professional Development

In order to meet IDP and career development needs of the occupational safety and health staff, the Occupational Safety and Health Administration Training Institute (OSHATI) provides a variety of technical training courses. These courses will be used by Navy OSH personnel as one means of meeting technical training needs. The NAVOSHENVTRACEN shall coordinate with OSHATI to provide courses for naval OSH professionals based on requirements identified by command headquarters in their annual training requirement submissions. Following is a list of courses that will be provided periodically either through OSHATI or qualified contractors. For more specific information on OSHATI courses, see annual OSHATI notices (OSHA Notice TED1).

<u>Course No.</u>	<u>Title</u>
200/A	Construction Standards
201/A	Hazardous Materials
203	Basic Electrical Principles
204/A	Machinery and Machine Guarding Standards
205	Cranes and Rigging Safety for Construction
206	Maritime Standards
207/A	Fire Protection and Life Safety
208	Cranes and Material Handling for General Industry
220	Industrial Noise
221	Principles of Industrial Ventilation
222/A	Respiratory Protection
223	Industrial Toxicology
224	Laboratory Safety and Health
225/A	Principles of Ergonomics
226	Permit-Required Confined Space Entry
228	Recognition, Evaluation and Control of Ionizing Radiation
233	Indoor Air Quality
301	Excavation, Trenching and Soil Mechanics
304	Power Press Guarding
308	Principles of Scaffolding
309/A	Electrical Standards
310	Applied Spray Finishing and Coating Principles
311	Fall Arrest Systems
331	Hazardous Waste Site Inspection and Emergency Response

CHAPTER 7

HAZARDOUS MATERIAL CONTROL AND MANAGEMENT (HMC&M)

0701. Background

a. This chapter identifies occupational safety and health (OSH) functions and defines requirements and responsibilities for shore activity hazardous material control and management (HMC&M). HMC&M focuses on preventing minimizing or eliminating the introduction of hazardous material (HM) into the Navy system, substituting less hazardous HM for HM already in the Navy system, safely using HM in the workplace, and safely handling and disposing of hazardous waste (HW). HMC&M incorporates the requirements of the Occupational Safety and Health Administration (OSHA) Hazard Communication (HAZCOM) Standard, the OSHA Hazardous Waste and Emergency Response (HAZWOPER) Standard, the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the Superfund Amendments and Reauthorization Act (SARA), or references 7-1 through 7-5 respectively. HMC&M involves a variety of local organizational and functional elements due to the requirements in reference 7-1, State and local right-to-know laws, overlapping requirements of the laws and regulations that affect HM use, and the logistic aspects of supply and material disposition.

b. HMC&M reinforces the importance of many basic OSH objectives and functions. All OSH personnel have a crucial role in support of the HMC&M program. Active participation of OSH staff in the program should reduce unnecessary functional overlaps and duplication of effort within the activity organization. Further, active and aggressive OSH, HMC&M, and HAZCOM efforts are an optimal means to eliminate or control personnel exposures to HM in the workplace, as well as reducing Navy liability related to HM use. Management leadership and the active involvement of employees and supervisors in implementing HMC&M-related programs are essential.

c. This chapter summarizes the HMC&M program elements for shore activities, identifies OSH functions for each element, and defines specific responsibilities and actions required for HMC&M program implementation. Section 0704 addresses afloat requirements.

0702. Responsibilities

a. Chief, Bureau of Medicine and Surgery (BUMED) shall, in addition to the general occupational health responsibilities for HM evaluation and consultation addressed in chapter 8 of this instruction:

(1) Perform health hazard assessments (HHAs) for new HM or for new uses for existing HM and confirm requirements for toxicological research for new systems or for Navy-unique HM or Navy-manufactured HM. BUMED shall take action, as appropriate, to ensure development of needed data for the safe use and handling of the HM in Navy systems, both ashore and afloat. Reference 7-6 provides additional guidance.

NOTE:

The Navy operates a toxicology research unit, the Naval Health Research Center Detachment (Toxicology) (TOXDET) at Wright Patterson Air Force Base, which conducts

toxicological profiles (TP) HHAs for materials of operational concern for the Navy. The Navy directly uses TPs completed by this unit in the setting of allowable exposure limits for HM in operational scenarios. The National Academy of Sciences (NAS) Committee on Toxicology (COT) collaborates with this unit to ensure the quality of the HHAs, proposed allowable limits, TPs, and other application of toxicology information necessary to determine the hazards posed by identified materials. Reference 7-6 contains detailed guidance regarding the procedures for obtaining HHAs for operational use of HM.

(2) Assist Navy systems commands (SYSCOMS), program managers, Navy regions and activities with implementing HMC&M requirements and performing HHAs associated with management of the facility level authorized use list (AUL). Additionally, BUMED shall, in conjunction with subordinate commands, perform risk assessments and evaluate the potential health hazards associated with reducing or eliminating the use of HM, including specification of protocols for substitution of less hazardous HM. BUMED will partner with the SYSCOMS, Navy regions, and individual Navy facilities to identify potential alternative actions, materials, and processes in support of cost effective compliance, promotion of personnel safety and health, and reduced emissions. Reference 7-8 provides additional guidance.

b. Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) shall, in conjunction with subordinate commands:

(1) Manage the supply system, develop and recommend to CNO (N45) and cognizant program managers those policies and procedures and any associated life cycle costs to enhance personnel safety and systems acquisition or facilities safety, and reduce or minimize the entry of new HM into the supply system.

(2) Establish HM logistics requirements; provide warehousing and material information systems; mark and label containers received, shipped, distributed or issued for use; provide information on HM storage compatibility; control HM acquired or used overseas; acquire only that HM authorized by shore activity HM AULs; and issue guidance for HM reuse and shelf life extension.

(3) Provide guidance to, and coordinate efforts on Navy-wide HM substitution. Reference 7-9 provides guidance on substituting and eliminating HM.

(4) Provide assistance and computer equipment to implement Pollution Prevention programs, the Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP), the Hazardous Substance Management Systems (HSMS) ashore and CHRIMP and Hazardous Material Inventory Control System (HICS) afloat, and assistance operation of HM minimization (HAZMIN) Centers. Reference 7-10 provides guidance on the CHRIMP implementation.

c. Chief of Naval Education and Training shall incorporate HMC&M requirements into the Navy Occupational Safety and Health and Hazardous Material Control and Management Navy Training Systems Plan (NTSP 40-S-8603D) and provide HMC&M training management and training materials per chapter 6 of this instruction.

d. Commanders of Headquarters Commands and major claimants shall coordinate with BUMED, COMNAVSUPSYSCOM, program managers, field activities, and Navy regions regard-

ing sponsored activities in those regions, to implement and maintain HMC&M programs as required by this manual and references 7-7 through 7-9. Major claimants shall provide OSH support and funding appropriate to develop and implement HM elimination and substitution processes for all systems and operations under their cognizance. Major claimant and subordinate command OSH professionals shall assist in managing the facility AUL to ensure the use of non-hazardous or least hazardous, technically acceptable materials.

e. Navy regions shall coordinate with their HQs, program managers and field activities to which they provide NAVOSH support to implement, manage and maintain HMC&M programs as required by this manual and references 7-7, through 7-10. Navy regions should liaison with other regions to develop "best business practices" in the management of HM. Navy regions executing centralized HMC&M program functions on behalf of regional shore facilities shall comply with those provisions applicable to shore activities per this chapter and references 7-7 through 7-9.

f. Commanders, commanding officers and officers in charge of Navy activities in foreign countries shall conform to U.S. OSHA laws and regulations and to this chapter, and to the extent feasible comply with applicable HM and HW requirements of host nation Status of Forces Agreements (SOFAs) or other official agreements which are more restrictive than U.S. regulations.

g. Commanders and commanding officers of shore facilities shall:

(1) Define and assign responsibilities within the facility for the HMC&M program and ensure compliance with this chapter and references 7-1, 7-7 through 7-10.

(2) Develop, implement, manage, and revise as necessary an activity level HM AUL. The AUL shall include all HM and any materials having components that meet or have potential to meet the definition of HW per 40 CFR 261 during any phase of its existence. For each HM listed, the AUL must include the stock number and item name for stock numbered items purchased via the stock system, or the product name and manufacturer name as they appear on the product label/material safety data sheet (MSDS) for items not purchased via the stock system. In addition, the AUL shall identify the process(es) for each HM it lists. The activity shall maintain this AUL for all HM it allows for use.

NOTE:

Navy recognizes the exemption in 29 CFR 1910.1200(b)(6). These exempted materials do not have to be listed on the AUL.

(3) Ensure that the appropriate OSH professionals perform a safety and health review of HM proposed for addition to the activity AUL prior to purchase of the HM, and that a periodic review of the AUL is performed to eliminate unnecessary HM, substitute less hazardous HM where feasible and comply with the provisions of reference 7-8. Contact the Navy Environmental Health Center (NEHC) for assistance, as required. (See also references 7-6 through 7-9 for further guidance).

(4) Develop, implement, and revise as necessary a facility level HM inventory that includes, as a minimum, the identity and quantity (by building) of HM present at the facility, including whether the material is an extremely hazardous substance, hazardous substance, or

cluding whether the material is an extremely hazardous substance, hazardous substance, or toxic chemical as defined under EPCRA (see chapter 4 in reference 7-7).

(5) Ensure HM is uniquely identified for reference, retrieval, and cross-reference between the label, MSDS, AUL, and HM inventory.

(6) Maintain an MSDS for all HM issued, received or brought onto the facility. This requirement may be satisfied by subscription to an online MSDS service in lieu of maintaining a hard copy. This does not remove the requirements of appendix 7-A. See appendix 7-A of this chapter for additional information.

(7) Establish systems to ensure that all HM is properly labeled per the requirements of reference 7-1. There are several allowable options for accomplishing this requirement. All HM must be labeled with:

(a) The original HAZCOM compliant manufacturer's label or an exact copy of the HAZCOM compliant manufacturer's label, or

(b) Standard Department of Defense (DoD) Hazardous Chemical Warning Labels (DD 2521 or DD 2522), or

(c) A label developed by the facility that contains the following information from the MSDS: the manufacturer's name, product identity, and hazard warnings.

NOTE:

Activities need not verify the technical content of a manufacturer-provided label, and may accept the content at face value. The activity shall, however, ensure that these labels provide the manufacturer's name, the product name, and hazard warning as required by reference 7-1, and report labeling deficiencies to the external supply organization, manufacturer, or distributor that supplied the material to the activity. Also, note that National Fire Protection Association (NFPA) labels do not comply with reference 7-1 and may only be used as a supplement to a HAZCOM compliant label.

(8) For shore activities within the continental United States (CONUS) (including Hawaii and Guam), implement HSMS at the facility, including the establishment of HAZMIN centers to facilitate the central management of all HM at the facility as required by CHRIMP. Activities may use the AUL/inventory capabilities of HSMS to meet the AUL/inventory requirements previously set forth in this paragraph. When an activity uses HSMS for inventory purposes, it will conduct a statistically valid audit of the accuracy of HSMS inventory data at least annually. Where significant error is found (i.e., over 10 percent error at the 90 percent confidence level), the activity shall conduct further evaluation and reconciliation of the HSMS inventory as necessary to restore an acceptable level of overall HSMS inventory accuracy. Implement HSMS or an equivalent system that meets the intent of HSMS that includes identification of an MSDS, industrial type or other process, and EPA waste stream for each manufacturer-specific HM used within the facility.

(9) Ensure activity managers, such as shop heads, general foremen, and supervisors participate in the HMC&M program by:

(a) Notifying the facility's responsible organization, usually the OSH office or the HAZMIN center, if HM not allowed for use is delivered to the shop or work center. When notified, the responsible organization shall take action or provide guidance in rectifying the problem. This shall be accomplished before the HM is used.

(b) Overseeing their respective areas of responsibility to ensure that personnel use HM only in processes for which it is authorized via the AUL and to ensure that HM for which there is no apparent authorized use is returned to the HAZMIN center for proper disposal.

(c) Ensuring pipes, tanks, and breakdown containers within their respective areas of responsibility are properly labeled per paragraph 0702h(6) and the activity's written HAZCOM Plan.

(10) Have the command OSH office provide staff support to ensure the implementation of a compliant hazard communication program at the facility. In meeting this responsibility, the OSH office shall:

(a) Participate in the DoD Hazardous Material Information System (HMIS) per the guidance contained in appendix 7-A (see also reference 7-11 for further guidance on the processing of MSDSs to ensure their prompt inclusion in the HMIS).

(b) Establish a system to ensure that they obtain current MSDSs and maintain them in a manner that ensures that they are readily available to employees during all working hours and that employees have an opportunity to review them prior to working with HM.

NOTE:

The term "readily available" means that employees who wish to do so must have access to MSDSs prior to beginning work with HM. It does not mean MSDSs must be available in any specific time frame. As long as employees can obtain MSDSs prior to using HM, and there are no significant physical or administrative barriers that inhibit the employee's ability to gain access to a needed MSDS, the MSDS is readily available. It is also important to note that neither employees nor supervisors are required to have MSDSs in their possession, as long as the MSDS can be obtained when needed.

(c) Assist in establishing and implementing procedures for preparing MSDSs for locally developed or manufactured HM, and conducting reviews of all locally prepared MSDSs.

(d) Establish criteria and procedures for reviewing incoming MSDSs to ensure they contain the information required by reference 7-1. Report MSDS deficiencies to the cognizant manufacturer/ distributor for correction. Report deficiencies in the DoD HMIS to NEHC at the address listed in appendix 7-A.

(e) Provide reports and recommendations resulting from the safety and health review to appropriate line supervisors, managers, and the activity HMC&M committee (where established).

(f) Provide consultation on the identification of HM, the labeling and marking of HM containers for special applications or conditions of use, and for HM produced or manufactured locally by the facility.

(g) Ensure that a compliant written HAZCOM plan is implemented that addresses the key elements of reference 7-1.

(h) Establish a program that ensures employees receive required HAZCOM training. Assist supervisors and training specialists in conducting HAZCOM training when requested.

NOTE:

OSH professionals or collateral duty personnel assigned duties or responsibilities for the activity HMC&M program require the following courses, available through the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN) or equivalent courses (as determined or approved by the Echelon Two headquarters):

(1) Introduction to Hazardous Material (Ashore), course A-493-0031;

(2) Hazardous Material Control and Management Technician, course A-322-2600 (available and required only for shore and afloat commands with a Navy Enlisted Classification (NEC) 9595 authorized billet requirement listed on the activity's manning document.

(i) Provide a mechanism for informing contractors of Navy HM to which their personnel may be exposed, and for informing Navy personnel of contractor HM and relevant MSDS to which they may be potentially exposed.

(j) Ensure that the activity Pollution Prevention Plan adequately addresses unresolved OSH concerns regarding the facility AUL, local purchases of HM, other HM management methods and means used to reduce and eliminate HM use, or operation of HAZMIN centers and implementation of CHRIMP and HSMS, either directly or as support services.

0703. Headquarters Command, Major Claimant, and Program Management Safety and Occupational Health Functions in Support of HMC&M

The full scope of HMC&M extends beyond OSH and encompasses all aspects of management, logistics, acquisitions and environmental protection. Those aspects of HMC&M involving occupational environments and workplaces are a major component of OSH programs, and headquarters commands shall support them accordingly.

a. Headquarters commands and major claimants shall assess environment, safety, and occupational health (ESOH) effects of chemicals and materials posing a high hazard potential in operations under their cognizance and use the results in all life cycle cost and trade-off decisions.

b. Headquarters commands and major claimants shall coordinate with program managers to address OSH aspects as an integral part of ESOH. OSH considerations shall be integral to system engineering processes, human factors engineering, and HM management principles and practices consistent with reference 7-11, DoDI 4715.4, the DoD Desk Book, SECNAVINST 5000.2B, and SECNAVINST 5100.10H. Headquarters commands and major claimants shall assist program managers whenever practicable to assess the ESOH effects of chemicals, processes, and materials posing a high hazard potential and use the results in all life cycle cost and trade-off decisions.

0704. Afloat HMC&M

Chapter 19 of reference 7-7, references 7-8 and 7-9, and chapters B3, C23 and D15 of reference 7-12 delineate functional responsibilities of key HMC&M participants aboard Navy ships. In general, receiving shore activities shall coordinate with ships regarding the movement of used and excess HM aboard receiving shore activities, and ensure containers are properly labeled with a HAZCOM compliant label or a DoD Hazardous Chemical Warning Label and MSDSs are provided to shore activities in the event the HM is not listed in the HMIS and the shore activity does not possess an MSDS for the item.

0705. Shore Activities in Foreign Countries

OSH offices shall support and participate in all OSH and HMC&M program elements discussed in section 0702 except where legally binding conflict exists with the laws of the foreign country and/or under local status of forces agreements. In such cases, the activity shall identify the conflict to the appropriate higher authority for resolution. Overseas shore activities are not required to implement HSMS at this time. Overseas activities should use HICS to operate HAZMIN centers.

0706. Chemical Hygiene Plans

Activities with laboratories, as defined in reference 7-10, shall develop Chemical Hygiene Plans. These activities may develop a single plan for more than one laboratory, as long as similar work is performed and the other requirements of reference 7-10 are met. There may be instances where a laboratory may need both a Chemical Hygiene Plan and a HAZCOM program. Cognizant headquarters commands shall assist subordinate activities in identifying specific laboratories that meet the definitions in reference 7-10.

0707. Process Safety Management

Activities meeting the threshold quantities of reference 7-13 shall follow the requirements of that reference.

Chapter 7

References

- 7-1. Title 29 Code of Federal Regulations (CFR) Section 1910.1200 of 1 Jul 97, OSHA Hazard Communication Standard
- 7-2. Title 29 CFR Section 1910.120 of 1 Jul 97, OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard
- 7-3. Title 40 CFR Part 240 of 1 Jul 97, Resource Conservation and Recovery Act (RCRA)
- 7-4. Title 40 CFR Subchapter J of 1 Jul 97, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- 7-5. Title 40 CFR Part 302 of 1 Jul 97, Superfund Amendments and Reauthorization Act (SARA)
- 7.6. BUMEDINST 6270.8, of 6 Jun 90 Procedures for Obtaining Health Hazard Assessments Pertaining to Operational Use of Hazardous Materials (NOTAL)
- 7-7. OPNAVINST 5090.1B, of 1 Nov 94 Environmental and Natural Resources Program Manual (NOTAL)
- 7-8. NAVSUP Publication 718, Navy Guidance Manual for the Hazardous Material Substitution Process.
- 7-9. NAVSUP Publication 722, Consolidated Hazardous Material Reutilization and Inventory Management Program (CHRIMP) Manual.
- 7-10. Title 29 CFR Section 1910.1450 of 1 Jul 97, Occupational Exposure to Hazardous Chemicals in Laboratories
- 7-11. DoD Instruction 6050.5 of 29 Oct 90, DoD Hazard Communication Program (NOTAL)
- 7-12. OPNAVINST 5100.19D CH-1, of 30 Aug 01 Navy Occupational Safety and Health Program for Forces Afloat (NOTAL)
- 7-13. Title 29 CFR 1910.119 of 1 Jul 97, OSHA Process Safety Management of Highly Hazardous Chemicals
- 7-14. Federal Standard (FEDSTD) 313, Material Safety Data Sheets, Transportation Data, and Disposal Data for Hazardous Materials Furnished to Government Activities Series, latest revision (NOTAL)
- 7-15. Defense Federal Acquisition Regulation (DFAR) clause 52-223-3 of Jan 97, Hazardous Material Identification and Material Safety Data (NOTAL)

7-16. Public Law 94-499 of 17 Oct 86, Emergency Planning and Community Right to Know Act (EPCRA)

7-17. Defense Federal Acquisition Regulation (DFAR) clause 252.227-7013 of Nov 95, Rights in Technical Data-Non-Commercial Items

Appendix 7-A

Hazardous Material Information System (HMIS)

1. Background and Discussion

a. DoD established HMIS to store and disseminate manufacturer's data and supplemental related information on HM. The system provides a means of sharing and communicating information on HM procured by a DoD activity with other commands, activities, and units within DoD. The overall operation of HMIS is prescribed in reference 7-11. This appendix discusses the Navy's implementation and operation of HMIS. In April 2002, HMIS is planned to be replaced with the DoD Hazardous Materials Information Resource System (HMIRS). All of the requirements in this instruction pertaining to HMIS will also pertain to HMIRS once it is implemented.

b. The Defense Logistics Agency (DLA) manages the DoD HMIS and maintains a computerized central repository of information on HM purchased for use within DoD. Local users receive MSDSs via vendors or suppliers who provide them per references 7-14 and 7-15. MSDSs sent by local users to a service focal point are the means by which HMIS is populated and updated.

c. The provisions of this appendix and reference 7-1 are not applicable to:

(1) HM purchased by the military exchange systems for subsequent resale, though the Consumer Product Safety Commission or other regulatory agencies may regulate the sale of that material.

(2) The acquisition of laboratory quantities of chemicals or other HM when used by qualified professions in Navy laboratories as defined in reference 7-10. In both these situations, however, the special provisions of reference 7-1 apply.

2. System Operation

a. Vendors and Suppliers. Vendors selling material to DoD activities will submit a fully completed MSDS to the procuring activity per the procurement contract. Reference 7-14 contains instructions for completing the MSDS forms.

NOTE:

Per reference 7-14, the preferred MSDS format is the American National Standards Institute (ANSI) Z400.1-1998, An American National Standard for Hazardous Industrial Chemicals-Material Safety Data Sheets Preparation (NOTAL). Navy-manufactured HM should use this format.

b. Commands and Activities

(1) Contracting officers for Navy shore activities and ships purchasing HM or consumables through vendors or other federal agencies (e.g., DLA, Government Services Administration (GSA), etc.) shall require the MSDS as a line item deliverable in the contract, per references 7-14 and 7-15, for all HM. Contracting officers shall attach a copy of documentation that adequately identifies the product (including National Stock Number (NSN)/Locally (service)-assigned temporary Stock Number (LSN), contract number, applicable military/Federal specification to which the product conforms and date of purchase or requisition and a point of contact within the contracting activity) to the MSDS.

(2) Upon award and per reference 7-14, the contracting officer shall forward the MSDS (and the manufacturer's current hazard communication standard compliant hazard warning label) to the Navy Environmental Health Center (NEHC), which is the Navy (service) focal point for MSDS submission. Submissions should be addressed to:

Commanding Officer
Navy Environmental Health Center
(NEHC)
Attn: IH (HMIS)
620 John Paul Jones Circle Ste. 1100
Portsmouth, VA 23708-2103

(3) For HM locally acquired (blanket purchases, direct buys or "off-the-shelf" purchases) by a Navy shore activity or ship, that activity shall ensure it obtains an MSDS from the vendor and the MSDS is available at the activity. The local activity shall determine whether the MSDS is present in the HMIS. If it is not, the activity shall forward the MSDS to the NEHC, as specified above, for inclusion in the HMIS.

NOTE:

There may be more than one MSDS for a given stock number (LSN or NSN) due to formulation changes or different manufacturers.

(4) Each activity shall retain either the HMIS MSDS or copies of the manufacturer's MSDSs for all HM received by that activity to fulfill the requirements of references 7-1 and 7-16.

c. Navy Environmental Health Center. The NEHC shall review each MSDS for completeness and prepare, or oversee the preparation of, an MSDS information package. The NEHC shall send the MSDS information package, via floppy disk or electronic format, to DLA for input into the DoD HMIS. For each MSDS that has a corresponding NSN or LSN, NEHC shall send a complete MSDS information package to the Naval Transportation Support Center (NAVTRANSUPCEN), Norfolk, VA, and notify NAVTRANSUPCEN that HMIS transportation data is required for the item.

d. Navy Transportation Support Center (NAVTRANSUPPCEN). Upon receipt of an MSDS information package and notification from the NEHC, NAVTRANSUPCEN shall prepare and add transportation data, including specific technical information concerning the transport of

regulated items, by any mode of transportation used by DoD shippers. NAVTRANSUPCEN shall then send the information package, via floppy disk or electronic format, to DLA for input into the DoD HMIS database.

e. DLA. DLA consolidates MSDS information submitted by service and agency HMIS focal points, maintains the HMIS database and provides the data to the Space and Naval Warfare Systems Center (SPAWAR). SPAWAR produces the HMIS on compact disks - read only memory (CD-ROMs) and distributes them to recipients designated by COMNAVSUPSYSCOM.

3. Outputs

The Hazardous Material Control and Management (HMC&M) CD-ROM Program Disk contains the complete HMIS database of MSDSs, the Ships Hazardous Materials List (SHML), and the Hazardous Material Users Guide (HMUG) described below. Commands can copy applicable sections of the HMIS, SHML, and HMUG and post in areas where specific HM or HM groups are used, handled, or stored. This information may also be electronically exported to other storage media or imported into distinct software systems. Distribution additions or changes should be forwarded to:

COMNAVSUPSYSCOM
Attn: Code 4241
5450 Carlisle Pike
P.O. Box 2050
Mechanicsburg, PA 17055-0791

a. Hazardous Material Information System (HMIS). DLA manages HMIS, which is a repository of MSDS and related information for HM used or purchased within the DOD system.

b. Ships Hazardous Material List (SHML). COMNAVSUPSYSCOM manages the SHML, and the Naval Inventory Control Point (NAVICP) in Mechanicsburg, PA maintains it. The SHML provides ships and contracting officers with the capability to identify HM authorized for use aboard ships and to preclude the stocking of HM for which ships have no operational need.

c. Hazardous Material User's Guide (HMUG). Commander, Naval Safety Center (COMNAVSAFCEN) manages the HMUG, which provides easily understandable safety and occupational health information to supplement the technical data found in the MSDSs. The contents of the HMUG include HM control measures, precautions, health hazards, spill control guidance, and disposal guidelines. It also provides a personal protective equipment (PPE) shopping guide.

4. Proprietary Information

The HMIS outputs (i.e., reference 7-11) and MSDSs may contain information that the supplier considers proprietary. To protect both the supplier and the Government, the contract under which the MSDS is obtained from the supplier shall contain the "Rights in Technical Data and Computer Software Clause" of reference 7-14. In these outputs, all proprietary information of the supplier that satisfies the definition of limited rights data (i.e., technical data pertaining to items, components or processes developed at private expense) is marked with the "limited

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rights legend" prescribed in the Rights in Technical Data and Computer Software Clause. Local activities shall protect this data.

CHAPTER 8

OCCUPATIONAL HEALTH

0801. Discussion

a. The primary objective of the Navy Occupational Safety and Health (NAVOSH) Program is to ensure a safe and healthful work environment for all Navy personnel. The occupational safety part of the program focuses on the elimination or control of the type of hazard that can result in instantaneous (acute) traumatic injury or death. The occupational health part deals with insidious health effects, usually produced by long-term (chronic) exposure to toxic chemicals or harmful physical agents (e.g., noise, radiation, etc.) and treatment of work related injuries. Since many hazardous agents can produce both acute and chronic effects, depending on the nature and degree of exposure, this control requires the close and continuing cooperation of all NAVOSH personnel.

b. Two major specialties comprise the occupational health program: industrial hygiene and occupational medicine (OM). Each of these specialties has, as one of its major functional components, a long-term surveillance program. Industrial hygiene involves the identification and evaluation of occupational health hazards and the recommendation of practical controls to lower workplace health risk. OM focuses on the medical surveillance of employees potentially exposed to the hazards identified during the industrial hygiene workplace evaluation, and the diagnosis and treatment of occupational injuries and illnesses. These two specialties, working together, form the basis for an active occupational health care program. Their integration at the local level provides a valuable tool in identifying and treating acute occupational illnesses and preventing chronic occupational illnesses.

c. This chapter applies to occupational health efforts at all naval shore activities including those which support Marine Corps activities. Reference 8-1 covers occupational health for forces afloat. Major functional components not included in this chapter are contained in other chapters of this manual.

d. The first priority for occupational health (OH) support is Department of the Navy (DON) operational commands. The next priority is other DON activities. OH services may be provided to other Department of Defense (DoD) activities and then to other federal activities as resources allow, and if inter-service support agreements are established as required by DODI 4000.19 of 9 August 1995 (NOTAL).

0802. Industrial Hygiene

Navy industrial hygiene personnel recognize, evaluate and make recommendations to control potential workplace hazards. Evaluation of Navy workplaces requires a sound, logical workplace exposure assessment strategy. The purpose of such a strategy is to accomplish at least three goals:

a. To assess potential health risk faced by Navy personnel, to differentiate between acceptable and unacceptable exposures, and to control unacceptable exposures

- b. To establish and document a historical record of exposure levels for Navy personnel and to communicate exposure monitoring results
- c. To ensure and demonstrate compliance with NAVOSH exposure criteria.

0803. Occupational Exposure Assessment

a. The occupational exposure assessment strategy is the plan for recognizing, evaluating, documenting and developing controls for occupational exposures. There are six major steps in setting up a functioning occupational exposure assessment program:

- (1) Basic characterization
- (2) Qualitative risk assessment and setting of priorities
- (3) Exposure monitoring
- (4) Interpretation and decision-making
- (5) Recommendations and reporting
- (6) Reevaluation.

Chief, Bureau of Medicine and Surgery (BUMED) shall provide all Navy shore activities with a current, thorough evaluation of each workplace per reference 8-2. This evaluation will accurately recognize, identify and quantify all potential health hazards. BUMED shall routinely update the evaluation during the subsequent periodic surveys and, if indicated, conduct specific workplace assessments to assure the validity of the previous exposure determinations. The following subparagraphs outline the basic requirements for occupational exposure assessment.

b. Basic Characterization of the Workplace (Walk-through Survey). The first step in the Navy's exposure assessment strategy is to characterize the workplace. The cognizant industrial hygienist (IH) shall conduct a survey of each workplace to obtain, as a minimum, the following information:

(1) Descriptions of operations, tasks and work practices that take place in the workplace (e.g., welding, spray painting). The description shall include a layout sketch incorporating relevant aspects of the factors listed below, along with the number of persons assigned to the operation/task and the specific work area(s) occupied. The IH shall note the frequency and duration of events taking place within the workplace.

(2) A list of hazardous materials (HM) used in the workplace that present significant risk. The list shall include a description of use at each workplace.

NOTE:

IHs shall have access to a copy of the authorized use list for the workplaces being surveyed from the activity occupational safety and health (OSH) office and/or first line supervisor.

(3) A list of physical hazards (e.g., noise, non-ionizing radiation, etc.) in the workplace that present significant risk including a brief description of their source(s)

(4) A description of existing controls (e.g., industrial ventilation and personal protective equipment)

(5) Groups of workers expected to have the same or similar exposure.

c. Qualitative Risk Assessment and the Setting of Priorities. Considering all the information available, the next step is to assess if there are significant personal exposures to toxic chemicals and/or harmful physical agents. The BUMED IH shall make this assessment, and shall maintain a written record of the assessment. The record shall include the rationale for any negative determination. When the IH identifies a task or operation that has a significant exposure, he or she will prioritize the task or operation for subsequent monitoring and evaluation.

d. Exposure Monitoring. Monitoring the workplace for toxic substances and/or harmful physical agents is the primary means of assessing:

(1) Personnel exposures

(2) The need to control exposures

(3) The effectiveness of measures directed at reducing or eliminating health hazards.

An IH shall accomplish these assessments using data gathered from representative sampling programs in the workplace. Analysis and interpretation of the data from this sampling assists in the timely assessment of hazards, in making recommendations for changes to existing conditions and in determining requirements for the medical surveillance of exposed personnel.

IHs (or IH technicians or exposure monitors, under the technical direction of an IH) shall conduct all exposure monitoring per reference 8-3.

Exposure monitors shall successfully complete the 9-day industrial hygiene techniques and exposure monitoring course and a period of on-the-job training as determined and documented by the supervising BUMED IH.

Qualifications are mandatory unless specified differently elsewhere in this instruction.

e. Interpretation and Decision Making. An IH shall evaluate all qualitative and quantitative data collected to determine:

(1) The degree of personnel exposure and whether exposures are acceptable or unacceptable. The IH shall document the basis for this decision.

(2) Recommendations for placement of personnel in medical surveillance programs

(3) Whether existing controls are adequate, the need for controls, and if needed, what they should be. This will apply to both interim and permanent measures, where indicated.

(4) Whether periodic exposure monitoring is necessary, and if so, the nature of the monitoring (what, where, how often, etc.).

f. Recommendations and Reporting. The cognizant IH shall provide a survey report, as outlined in reference 8-3, to the surveyed activity.

The cognizant BUMED IH shall prepare and implement an exposure monitoring plan to:

- (1) Fulfill regulatory sampling requirements
- (2) Collect sufficient data to allow statistically valid exposure assessments
- (3) Track workplace exposures to determine trends
- (4) Validate professional judgments of unchanged exposure assessments.

The BUMED IH shall design this plan to obtain samples representative of actual exposures and to analyze the data collected to minimize any bias involved in the process. He or she shall base the plan on a sampling strategy, such as the one outlined in reference 8-4. NAVOSH standards shall specify the frequency of monitoring. Where such standards do not exist, the IH shall use professional judgment to determine the frequency of monitoring. When the BUMED IH performs the exposure monitoring, he or she may incorporate the exposure monitoring plan in the industrial hygiene report. If the BUMED IH takes this course, he or she shall include the following information: what must be sampled, how many samples are needed and how often the sampling should be performed. If the BUMED IH does not include the exposure monitoring plan in the industrial hygiene survey report, he or she may use appendix 8-A or a computer-generated facsimile (i.e., containing data fields of appendix 8-A) for developing the exposure monitoring plan, per reference 8-3.

g. Reevaluation. The BUMED IH shall, at a minimum, provide each activity a periodic reevaluation per appendix 8-B.

Regardless of any activity's category, the BUMED IH may specify more frequent evaluations for specific workspaces or processes depending upon the industrial hygiene exposure assessment. For example, an isolated high hazard space within an otherwise administrative Category III activity -will require reevaluation more frequently than every 4 years. Regardless of their activity's category, the IH can evaluate all administrative workplaces and tasks at the category III periodicity. For operations governed by reference 8-5 through 8-7, the cognizant IH shall comply with the exposure assessment required by those references. Any changes in the workplace that could affect exposures shall prompt a reevaluation. The surveyed activities shall establish procedures to ensure that the cognizant IH is notified of any such changes.

0804. Retention and Access Sampling Records (Disposition)

a. The BUMED IH shall forward individual exposure monitoring information for placement into the individual's medical record. (Section 0808 discusses medical records.)

b. BUMED shall retain survey, evaluation and sampling records (section 0803) for a minimum of 40 years (except where specific applicable standards require retention for a longer time).

c. The supporting medical activity shall provide employees and their representatives access to those records pertinent to their individual exposures, upon reasonable request per reference 8-8.

0805. Occupational Exposure Registry and Data Bank

The Navy requires standardization of industrial hygiene data. Analysis of this data will allow for the assessment of hazardous operations Navy-wide and reduce personnel exposure to health hazards. To satisfy this requirement, personnel conducting surveys shall use:

a. Sampling survey forms- contained in reference 8-3 or computerized equivalent (i.e., at a minimum containing the same data fields). Sample forms may be obtained by writing to Commanding Officer Navy Environmental Health Center, NEHC, 620 John Paul Jones Circle, Ste. 1100, Portsmouth, VA 23708-2103 or via the internet <http://www-nehc.med.navy.mil /ih/index.htm>.

b. Activities submitting their samples to laboratories other than the Consolidated Industrial Hygiene Laboratories (due to special projects or contracted services) shall submit a copy of analytical results to NEHC.

0806. Consultative Assistance Teams

To facilitate OH support, consultative assistance teams (CATs) are available to provide timely, high quality, technical and professional assistance to field activities. CATs are available for all aspects of occupational health programs (e.g., industrial hygiene, OM/nursing, audiology).

a. The three types of CATS are:

(1) Type I. Provides assistance for situations that are beyond the professional capability of local resources and which may threaten or have adverse health affects to naval personnel or their working environment.

(2) Type II. Provides professional and administrative personnel to evaluate program management, effectiveness of program implementation and management of resources.

(3) Type III. Augments local staff to provide required services beyond the capabilities of the requesting activity.

b. Requesting a CAT. Any activity requiring CAT assistance shall submit requests to BUMED 24 by letter or message. After receiving a request, BUMED shall contact the requesting activity and determine the scope of work. In emergency situations, a request by telephone is acceptable; however, confirmation by message or letter shall follow.

c. Limitations. CATs shall not conduct pre-Navy Occupational Safety and Health Oversight Inspection reviews. Requesting activities are ultimately responsible for all required sam-

pling and surveys. CATs will not normally conduct complete routine periodic surveys, but will assist in evaluating new processes or environments.

0807. Occupational Medicine Service Program Elements

a. Elements of a comprehensive OM program include:

(1) Diagnosis, treatment, and referral (as indicated) for acute and chronic occupational illnesses and injuries, and care of non-occupational, non-urgent conditions to allow a worker to complete his/her work shift

(2) Medical surveillance program management including:

(a) Validation of personnel assignment to medical surveillance programs based on industrial hygiene data

(b) Medical surveillance examinations per reference 8-9

(c) Ongoing assessment of aggregate population data to identify trends

(3) Fitness for duty medical evaluations (e.g., pre-placement, return-to-work, etc.)

(4) Medical certification examinations per reference 8-9

(5) Work area consultation

(6) Epidemiological assessment of injury and illness data to focus prevention efforts

(7) Occupational illness and injury case management to restore workers to optimal function as soon as feasible

(8) Occupational audiology services in support of the hearing conservation program

(9) Occupational optometry services in support of the sight conservation program

(10) Clinical consultative services

(11) Preventive services (e.g., appropriate immunizations to prevent disease due to occupational exposure)

(12) Work area health promotion programs

(13) Training and education of workers and professionals and support staff

(14) Occupational medicine program management (e.g., bloodborne pathogens, hearing conservation, ergonomics, reproductive hazards, etc.).

0808. Medical Records

Maintenance, retention and disposition of personnel medical records shall follow existing directives. The medical records custodian shall provide workers (or their representatives) access to occupational medical records upon reasonable request per reference 8-8. The medical records custodian shall make a worker's medical record available to a physician or other person of the individual's choice after execution of proper release documents (i.e., compliance with provisions of the Privacy Act).

0809. Responsibilities

a. Chief, Bureau of Medicine and Surgery (BUMED), through its Echelon Three, Four and Five activities, shall provide OH support Navy-wide (see chapter 2) including:

- (1) A comprehensive industrial hygiene program as defined in section 0803 including:
 - (a) Initial and periodic evaluation of the conditions at each Navy shore activity
 - (b) Technical direction of exposure monitoring programs, including training, procedures, sampling and analytical methods, sample analysis and analysis/interpretation
 - (c) The 9-day industrial hygiene techniques and exposure monitoring course
- (2) A comprehensive occupational medical program as defined in Section 0807 above
- (3) The establishment, in coordination with each activity, of appropriate records relating to all OH aspects of the activity's NAVOSH program
- (4) Other consultative occupational health support, as requested by the activity commanding officer to meet the requirements of this instruction
- (5) Custody of all medical records if not handled by the medical department.

b. Activity commanders, commanding officers and officers in charge shall provide a safe and healthful work place for their employees and coordinate with the cognizant BUMED activity for the provision of the OH services described above. When non-medical activities perform services outlined in this chapter, they will perform those services per, and under the technical oversight of, BUMED.

c. Commanders of Naval Shipyards shall supplement BUMED programs by the continued operation of their exposure monitoring programs.

Chapter 8

References

- 8-1. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)
- 8-2. DOD Instruction 6055.5 of 10 Jan 89, Industrial Hygiene and Occupational Health (NOTAL)
- 8-3. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision
- 8-4. AIHA "A Strategy for Occupational Exposure Assessment", latest revision
- 8-5. Title 29 CFR 1910, Occupational Safety and Health Standards (NOTAL)
- 8-6. Title 29 CFR 1915, Occupational Safety and Health Standards for Shipyards (NOTAL)
- 8-7. Title 29 CFR 1926, Occupational Safety and Health Standards for Construction (NOTAL)
- 8-8. Title 29 CFR 1910.1020, Subpart Z, Toxic and Hazardous Substances (NOTAL)
- 8-9. NEHC Technical Manual, Medical Surveillance Procedure Manual and Medical Matrix, latest revision

Appendix 8-A

Exposure Monitoring Plan

OPNAV 5100-25

WORKPLACE INFORMATION			
Organization:			
Shop or Work Center:			
Location:			
Supervisor:		Phone:	
No. of Workers:	Male:	Female:	
Shop Operations:			
Potential Hazard	Intermittent or Continuous	Workers Involved	Controls
EXPOSURE ASSESSMENT			
Comments:			
Signed:		Date:	
Title:			

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Appendix 8-A

Enclosure (1)

MONITORING PLAN					
Potential Hazard	No. of Measurements	Method of Measurement ¹	Location of Measurement ²	Frequency (per year)	Man-Hours (Per Year)

1 Use the following codes:

- DR - Direct reading instrument
- IT - Indicator tube
- AT - Adsorption tube (charcoal, silica gel, etc.)
- B/I - Bubbler/Impinger
- F - Filter
- PD - Personal Dosimeter
- O - Other

2 Use the following codes:

GA - General area

BZ - Breathing zone of personnel

SZ - Source zone

O - Other (specify)

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Appendix 8-B
Periodic Industrial Hygiene Reevaluation Frequency Categories

ACTIVITY CATEGORY	REQUIRED IH SURVEY FREQUENCY	ACTIVITY EXAMPLES
I High Hazard	Annual	NAVSHIPYD, SRF, NAVAVNDEPOT, SIMA, AIMD, PWC, WEAPONS/ORDNANCE STATION, NAVIMFAC, TEST CENTER OR LAB, MEDICAL/DENTAL ACTIVITIES, ACU, BMU, PHIBCB, NUWC, NSWG
II Moderate Hazard	Every 2 years	NAVAL STATIONS, AIR STATIONS, NCTAMS, FISC, SEAL TEAMS, SHIPS AND SUBMARINES, AVIATION SQUADRONS, SUBTRAFAC, FLTIMAGING, NAVFAC EFD, NCIS, NAVBASE, EXCHANGE, EOD, NAVCOMTELSTA, NAVCOMMU, FLETRACEN, FASO, CNET, FACSAC, NOSTRA
III Low Hazard	Every 4 years	ALL OTHER ACTIVITIES WITH PRIMARILY OFFICE OR CLASSROOM WORK, SUCH AS ADMINISTRATIVE HEADQUARTERS STAFFS AND ADMINISTRATIVE SUPPORT COMMANDS

Note: Where Category III activities have received a documented baseline industrial hygiene survey and it can be verified that the facility and/or work processes have not changed since the last evaluation, the reevaluation does not require a site visit.

CHAPTER 9

NAVOSH INSPECTION PROGRAM

0901. Discussion

The Navy Occupational Safety and Health (NAVOSH) Inspection Program is necessary to ensure safe and healthful workplaces for all Navy employees. The inspection program identifies deficiencies that need correcting to protect personnel and meet regulatory requirements. The overall NAVOSH inspection program consists of three levels of inspection, each fulfilling different objectives:

a. Workplace Inspections. Activity commands shall inspect for hazardous conditions, unsafe work practices and violations of standards. They shall follow up on accident reports and abatement actions.

b. Command Inspections. Cognizant headquarters commands shall perform command inspections of their subordinate activities. Per reference 9-1, headquarter commands shall conduct on-site evaluations of the effectiveness of OSH programs at least once every 3 years. The objective of these evaluations is to ensure that subordinate commands and field activities have effective NAVOSH programs.

c. Oversight Inspections. The Naval Inspector General (NAVINSGEN) shall conduct oversight inspections to evaluate compliance with all requirements of the NAVOSH program and implementation of the Process Review and Measurement System (PR&MS). Appendix 9-A lists Naval Inspector General Oversight Inspections Unit (NOIU) organizational relationships.

d. President, Board of Inspections and Survey (PRESINSURV). President, Board of Inspection and Survey (PRESINSURV) is responsible for the oversight inspections for forces afloat and shall maintain close liaison with the NAVINSGEN for matters of common interest concerning the NAVOSH program.

0902. Qualifications for Inspectors

a. A successful inspection program requires trained, qualified, and competent inspectors. Inspectors shall thoroughly familiarize themselves with the equipment at the workplace and work practices. The term "Safety and Health Inspector" means a safety and/or occupational health professional who has met the Office of Personnel Management (or military equivalent) standards, and who has the equipment and competence to recognize safety and/or health hazards in the work place. The Navy shall base qualifications for inspectors on the degree of hazard and complexity of the inspection areas or operations.

b. A fully qualified journeyman safety inspector (e.g., GS-018, 019 or 803 classification series) shall take the following classroom courses (or equivalent training as determined by the OSH manager). The courses are available through the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN).

(1) Introduction to NAVOSH Ashore, course number A-493-0050

- (2) General Industry Safety Standards, course number A-493-0061
- (3) Safety Appraisal, course number A-493-0043
- (4) Introduction to Industrial Hygiene for Safety Professionals, course number A-493-0035
- (5) Electrical - Standards, course number A-493-0033
- (6) Introduction to Hazardous Materials (Ashore), course number A-493-0031.

0903. Workplace Inspections - Shore Activity Level

The activity's commanding officer shall ensure routine workplace OSH inspections are conducted, and the cognizant medical activities provide occupational health support as necessary. Line managers/ supervisors are responsible for day-to-day inspections and corrective actions.

a. Safety and health personnel shall inspect all workplaces at least annually. They shall inspect high hazard areas more frequently based upon an assessment of the potential for injuries, occupational illnesses or damage to Navy property. Major commands, installations or the local activity shall establish guidelines for increased frequency of inspections.

b. Section 0902 outlines qualifications for inspectors. In the event activities do not have the required expertise, they shall make arrangements with the appropriate echelon commander to obtain assistance.

c. Activities shall provide inspectors with appropriate technical test equipment, where required.

d. Activities shall conduct inspections in a manner to preclude unreasonable disruption of the operations of the workplace. Inspections shall be consistent with the operational concepts of the Navy and local commands. Activities may conduct these inspections with or without prior notice.

e. Inspectors may deny the right of accompaniment to any person whose participation interferes with a fair and orderly inspection or who lacks the required security clearance.

f. Inspectors shall discuss matters affecting safety and health with employees or employee representatives and offer them the opportunity to identify unsafe or unhealthful working conditions while remaining anonymous.

g. When an inspector discovers an imminent danger situation during an inspection, he/she shall immediately notify supervisory personnel (in certain cases the commanding officer of the activity). Activities shall initiate immediate abatement action or terminate the operation.

h. Inspectors shall provide NAVOSH Deficiency Notices for all risk assessment codes (RAC) 1, 2 and 3 deficiencies to the official in charge of the operation within a reasonable time, but not later than 15 working days after the inspection. Inspectors shall provide a written report

of the inspection, including administrative findings, to the official in charge of the operation within 45 days of completion of the inspection. For notification purposes, they shall use OPNAV 5100/12, NAVOSH Deficiency Notice (appendix 9-B), or a computer-generated form that includes all the information of OPNAV 5100/12. Inspectors can group multiple identical deficiencies in the same organization (jurisdiction of the same supervisor) or worksite into a single notice.

i. Activities shall correct violations of NAVOSH standards and other deficiencies found during inspection per chapter 12.

j. When deficiency notices have been prepared, activities shall use section C of OPNAV 5100/12 to document follow-up inspections. They shall develop procedures for correcting unsafe or unhealthful working conditions that include a follow-up, to the extent necessary, to determine whether the correction was made.

k. Activities shall retain inspection records for a minimum of 5 years.

0904. Command Inspections

Headquarters commands shall ensure that appropriate evaluations of NAVOSH program effectiveness are conducted at subordinate commands and field activities at a minimum of every 3 years per reference 9-1. Whenever possible, these evaluations shall be part of a Command Inspection.

a. Command evaluations shall:

(1) Evaluate the results of mishap prevention efforts.

(2) Review the activity self-evaluation and the quality, effectiveness and implementation of the activity self-assessment improvement plan.

(3) Review compliance with NAVOSH program requirements, including this manual.

b. The command Occupational Safety and Health Management Inspection Evaluations shall be of sufficient depth to enable the appropriate echelon commanders and the Navy's designated OSH officials to monitor the effectiveness of respective command or activity programs. Commands shall tailor their evaluations to the size, mission, organization and mishap experience of the activity.

c. The NOIU inspections may be used to meet this requirement.

0905. Oversight Inspections

a. A strong oversight inspection covering the total NAVOSH program is central to the success of an OSH program. The oversight inspection program evaluates all aspects of the NAVOSH program. NAVINSGEN shall conduct the inspection ashore using NOIU.

b. NOIU shall conduct oversight inspections at the activity level, under the direction of NAVINSGEN using the PR&MS or special Navy-wide studies/inspections. NOIU shall also

evaluate regional occupational health support while conducting oversight inspections at major medical facilities. They shall use OSH professionals and prioritize locations for inspections based on the significance of safety and health problems. To the maximum extent possible, the NOIU should coordinate scheduling of their inspections so as to avoid conflicts with triennial headquarters command inspections. Headquarters commands should inform the Director, Oversight Inspection Unit of command inspection schedules as they become available. The Naval Safety Center (COMNAVSAFECEN) shall provide management information system (MIS) and automatic data processing (ADP) assistance and support to the NAVINSGEN and the NOIU. Appendix 9-A provides the organizational and functional relationship between the NAVINSGEN and NOIU.

c. NAVINSGEN shall provide the CNO with semi-annual reports that include analyses of NAVOSH inspection results, and a summary of inspections performed during the reporting period.

Chapter 9

References

9-1. DODI 6055.1 of 19 Aug 98, DoD Safety and Occupational Health (SOH) Program (NOTAL)

Appendix 9-A

Naval Occupational Safety and Health Inspection Program
Organizational Relationships

NAVINSGEN

- a. Serves as designated focal point for Navy (less Marine Corps) inspections ashore
- b. Maintains overview of inspection aspects of the program
- c. Issues oversight inspection schedule and activity visit announcements
- d. Signs and forwards formal reports to appropriate higher authority
- e. Maintains automatic data processing database relationship with COMNAVSAFECEN
- f. Determines and directs inspection follow-up as required.

OVERSIGHT INSPECTION UNIT (NOIU)

- a. Specifies details of inspection requirements
- b. Develops inspection procedures
- c. Schedules and prepares for physical inspection of activities
- d. Conducts inspections in the name of NAVINSGEN. Prepares reports thereof and forwards to NAVINSGEN.
- e. Provides NAVOSH deficiency data for inclusion in ADP database
- f. Performs inspection follow-up as required by NAVINSGEN.

Appendix 9-B

NAVOSH Deficiency Notice

OPNAV 5100-26

NAVOSH DEFICIENCY NOTICE			
SECTION A - DEFICIENCY INFORMATION		I.D. NO.:	
Organization:		Location:	
Description of Hazard:			
Standard Violated:		RAC:	
OSH Official:		Date:	
SECTION B - ABATEMENT STATUS (COMPLETE ALL APPLICABLE PARTS)			
• INTERIM CONTROLS			
• ABATEMENT PROJECT INITIATED			
Project Description:		Action Taken (Included Work Orders/Purchase Request numbers and date as appropriate):	
		Cost Estimate:	Completion Date (Est):
• DEFICIENCY CORRECTED			
Corrections Made:		Date:	
		Cost	
		Labor:	Material:
Signature:			
SECTION C - COMMENTS			

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CHAPTER 10

EMPLOYEE REPORTS OF UNSAFE/UNHEALTHFUL WORKING CONDITIONS

1001. Discussion

a. This chapter provides guidance on establishing a channel of communication between Navy civilian and military employees and those supervisory personnel responsible for safety and health matters for the purpose of ensuring prompt response to, and analysis of, reports of alleged unsafe or unhealthful working conditions.

b. Identifying and reporting potentially unsafe or unhealthful working conditions is the responsibility of all Navy employees, both military and civilian. The employee has the right to decline a task because of a reasonable belief that there is an imminent risk of death and insufficient time for normal hazard reporting and abatement actions.

1002. Hazard Reporting

Detecting unsafe or unhealthful working conditions at the earliest possible time and making prompt corrections of these hazards at the lowest possible working level are essential elements of the NAVOSH program. Naval activities shall use the following procedures for submission of employee reports of unsafe or unhealthful conditions in the workplace:

a. Immediately report unsafe or unhealthful working conditions. Since many safety and health problems can be eliminated as soon as they are identified, commanders shall encourage all Navy employees to orally report unsafe or unhealthful working conditions to their immediate supervisor who shall promptly investigate the situation and take appropriate corrective actions. Supervisors shall contact the activity occupational safety and health (OSH) office for assistance, as necessary. Supervisors shall inform the reporting employee of all action taken on oral reports.

b. Submit a report of unsafe or unhealthful working condition. Any Navy employee (or employee representative) may submit a report of an unsafe or unhealthful working condition directly to the activity OSH office. OPNAV 5100/11 shown in appendix 10-A may be used for this purpose. Commands shall post blank copies of this or a similar form and procedures for its use in areas convenient to all workplaces (e.g., official bulletin boards, time clocks, etc.). The form used shall include a provision for an employee to indicate his/her desire to remain anonymous, should he/she wish.

Employees may make an oral report to the OSH office instead of a written report. In these cases, the OSH office will transcribe the information into a written report.

c. Maintain records of all reports filed. The OSH office shall maintain records of all hazard reports received. Records shall include: date, time, identifying reference number, location of condition, brief description of condition, hazard classification, and the date and nature of action taken. When necessary, the OSH office shall contact the employee making the report and/or advise the cognizant supervisor that a hazard has been reported.

d. Promptly investigate all reports. The OSH office shall investigate all reports brought to its attention (alleged imminent danger situations within 24 hours and potentially serious situations

within 3 days). If the reported situation involves a health hazard, as opposed to a safety hazard, the OSH office shall refer the report to the cognizant medical activity for investigation as necessary.

e. Provide an interim response to the report originator. The OSH office shall provide an interim or complete response in writing to the originator of a written report within 10 working days of receipt. Interim responses shall include the expected date for the complete response. If the investigator validates the reported hazard, the complete response shall include a summary of the action taken for abatement. If no significant hazard is found to exist, the reply shall include the basis for the determination.

f. Encourage the originator to follow through if he/she is dissatisfied. The complete response shall encourage, but not require, the originator to informally contact the OSH office if he or she desires additional information or is dissatisfied with the response. Complete responses shall indicate that formal appeals can be made and shall state or provide the reference for procedures for making appeals and appeals levels.

g. Handle grievances separately from hazard reporting. A hazard report is not a grievance. In the event that a hazard report also involves a grievance action, the OSH office shall notify the complainant that the processing of the hazard report will be separate from the grievance response. In no case will a grievance action delay an OSH Office response to a report of an unsafe or unhealthful working condition.

1003. Appeals

a. If the originator of a report is dissatisfied with the assessment made by the activity OSH office of the alleged hazard or with action taken to abate a confirmed hazard, the activity OSH office shall encourage the employee to confer with it to discuss the matter further. If the originator remains dissatisfied after such discussion, he/she may appeal to the activity commanding officer. The written appeal shall contain at least the following information:

(1) A description of the alleged hazard including its location and standards violated, if known (a copy of the original hazard report shall suffice)

(2) How, when, and to whom the original report of the alleged hazard was submitted

(3) What actions (if known) were taken as a result of the original report.

(4) A statement explaining why the actions taken as a result of the original report were unsatisfactory and are being appealed.

b. The activity commander, or his/her representative, shall respond to the originator of the appeal within 10 working days. The response shall contain the office and address of the next higher level of appeal.

c. If the employee is still dissatisfied or has not received a response within 20 working days, he/she may appeal to the next higher level of command. The originator may submit subsequent appeals if still not satisfied with the action taken as a result of the previous appeal. The sequence of appeals shall be through Echelon Four, Three or Two, the Chief of Naval Operations (CNO)

(N454), the Assistant Secretary of the Navy (Installations and Environment) (ASN(I&E)), and the Assistant Deputy Under Secretary of Defense (Safety and Occupational Health Policy) (ADUSD(SH)). Each appeal shall include the information prescribed in paragraphs 1003a(1)-(4) with emphasis on the actions taken by the reviewing authority on the previous appeal and reasons why the originator is still not satisfied. Paragraph 1003b prescribes each response by the reviewing authority.

d. The final appeal authority for military personnel is the Deputy Under Secretary of Defense (Environmental Security) DUSD(ES). In the event that a civilian employee is not satisfied with the response from DUSD(ES); he/she may contact the Office of Federal Agency Safety Programs, US Department of Labor, Washington, DC 20210.

1004. Reports to the Occupational Safety and Health Administration (OSHA)

Section 1002 provides a mechanism for all Navy employees to report unsafe and unhealthful working conditions to the appropriate authority for in-house resolution. Navy civilian employees may, at any time, submit complaints alleging workplace hazards directly to the Department of Labor (DOL) (OSHA). Navy civilian employees do not have to exhaust their chain of appeal before reporting a hazard to their cognizant federal OSHA office; however, the Secretary of Labor encourages employees to use the Navy in-house hazard reporting procedures as they are usually the most expeditious means to achieve abatement. Reports to the DOL OSHA may serve as the basis for investigations or inspections by OSHA officials. See chapter 11 for guidance concerning such investigations or inspections.

1005. Responsibilities

Activity commanders, commanding officers, or officers in charge shall:

a. Publicize (e.g., posting, training) the existence of the employee hazard reporting program and notify personnel regarding their rights and obligations in regard to reporting hazardous situations.

NOTE:

Posting DD 2272, DOD Occupational Safety and Health Protection Program, alone is not sufficient notification to personnel of the existence of the employee hazard reporting program, nor is it sufficient explanation of their right to participate.

b. Maintain the anonymity of personnel making a report or named in a report if requested by the reporting or named employee.

c. Encourage the submission of oral reports to supervisors as the quickest and most effective method of hazard identification and correction.

d. Ensure that standardized hazard reporting forms and procedures are available to all personnel.

e. Include safeguards to ensure that the command does not subject Navy employees to restraint, interference, coercion, discrimination, or reprisal by virtue of their participation in the activity's OSH program.

NOTE:

Personnel shall file allegations of reprisal for such participation under existing grievance procedures.

f. Maintain adequate recordkeeping practices and retain records for at least 5 years following the end of the calendar year in which final action on a report was undertaken.

Appendix 10-A
Navy Employee Report of Unsafe or Unhealthful Working Condition

OPNAV 5100-27

NAVY EMPLOYEE REPORT OF UNSAFE OR UNHEALTHFUL WORKING CONDITION	
<i>THIS FORM IS PROVIDED FOR THE ASSISTANCE OF AN EMPLOYEE AND IS NOT INTENDED TO CONSTITUTE THE ONLY METHOD BY WHICH A REPORT MAY BE SUBMITTED</i>	
1. THE UNDERSIGNED (check one) EMPLOYEE REPRESENTATIVE OF EMPLOYEES BELIEVES THAT A VIOLATION OF AN OCCUPATIONAL SAFETY OR HEALTH STANDARD WHICH IS A JOB SAFETY OR HEALTH HAZARD HAS OCCURRED AT a. Navy installation/activity and mailing address b. Building or worksite where alleged violation is located, including address 2. NAME AND PHONE NUMBER OF GOVERNMENT SUPERVISOR AT SITE OF VIOLATION	
3. DOES THIS HAZARD IMMEDIATELY THREATEN DEATH OR SERIOUS PHYSICAL HARM? NO YES	
4. BRIEFLY DESCRIBE THE HAZARD WHICH EXISTS INCLUDING THE APPROXIMATE NUMBER OF EMPLOYEES EXPOSED TO OR THREATENED BY SUCH HAZARD 	
5. IF KNOWN, LIST BY NUMBER AND/OR NAME, THE PARTICULAR STANDARD (OR STANDARDS) ISSUED BY THE AGENCY WHICH YOU CLAIM HAS BEEN VIOLATED 	
6. TO YOUR KNOWLEDGE, HAS THIS VIOLATION BEEN THE SUBJECT OF ANY UNION/MANAGEMENT GRIEVANCE OR HAVE YOU (OR ANYONE YOU KNOW) OTHERWISE CALLED IT TO THE ATTENTION OF, OR DISCUSSED IT WITH, THE GOVERNMENT SUPERVISOR NO YES (List results, including any efforts by management to correct violation)	
7. EMPLOYEE NAME (PLEASE PRINT OR TYPE CLEARLY)	8. EMPLOYEE SIGNATURE
9. EMPLOYEE ADDRESS	10. EMPLOYEE PHONE NUMBER
11. MAY YOUR NAME BE REVEALED? NO YES	12. ARE YOU A REPRESENTATIVE OF EMPLOYEES? NO YES (List organization name)
13. DATE FILED:	

OPNAV 5100/11 (11-92)

Appendix 10-A

Enclosure (1)

CHAPTER 11

INSPECTIONS AND INVESTIGATIONS OF WORKPLACES BY FEDERAL AND STATE OSH OFFICIALS

1101. Background and Discussion

- a. Per reference 11-1, Navy facilities are subject to Department of Labor (DOL) inspections with few exceptions.
- b. In addition, with few exceptions, contractor operations at Navy activities are subject to DOL inspections.
- c. Liaison between the contractor and the contracting agent will help ensure that all responsibilities and procedures for the inspections of contractor workplaces are clearly understood. Some contracts include the provisions of certain Defense Acquisition Regulations (DARs) (e.g., DAR 7-602.42 (NOTAL) for construction contracts) to ensure this liaison. Other contracts must provide a method for the liaison as well as requirements to protect Navy personnel from contractor operations.
- d. The provisions that follow apply to the actions of Federal and State Occupational Safety and Health (OSH) officials while inspecting Navy shore installations, ships and Navy civilian workplaces. The inspection authority of Federal and State OSH officials is summarized in appendix 11-A.

1102. Federal and State Occupational Safety and Health Inspections at Contractor Workplaces on Navy Shore Installations

- a. The OSH Act provides for the development, issuance and enforcement of standards. DoD contractors, operating from DoD or privately-owned facilities located on or off Navy shore installations, are employers as defined in the Act and are subject to enforcement authority by Federal and certain State safety and health officials. Accordingly, and subject to the conditions and exceptions stated here, Navy shore activities shall grant permission for Federal and State Occupational Safety and Health Administration (OSHA) officials, to enter their installations without delay and at reasonable times to conduct inspections of contractor workplaces. These inspections may be routine or based on reports of unsafe or unhealthful conditions, specific complaints, accidents or illnesses of contractor employees.
- b. Federal and State safety and health officials shall present appropriate identifying credentials and shall state the purpose of the visit to the Navy shore installation commander or his/her authorized representative and to the administrative contracting officer (ACO) (if appropriate), before conducting an inspection of contractor workplaces situated on a Navy shore installation.
- c. A State may exercise jurisdiction over OSH matters involving a contractor workplace at a Navy shore installation provided the State has an OSH plan approved by the Secretary of Labor. Exceptions are stated in paragraphs 1102e and g.

d. Authorized safety and health officials from States without OSHA-approved OSH plans may, subject to exceptions noted elsewhere in this chapter, exercise jurisdiction over OSH matters involving contractor workplaces on Navy shore installations only when there are no relevant OSHA standards in effect. Prior to authorizing an inspection or investigation, installation commanders shall request the State to provide confirmation that there is no relevant Federal OSHA standard applicable to the contractor workplace.

e. Under reference 11-1, only Federal OSHA officials may perform inspections in DoD contractor workplaces situated in areas where the United States holds exclusive Federal jurisdiction.

f. The Secretary of Labor has no authority over nuclear safety/health or explosive safety aspects of operations specifically covered by:

(1) Any State nuclear safety or health standard or regulation implementing 42 U.S.C. Section 2021 and 2121(b), or 2201(b)

(2) Any explosive safety or health standard or regulation implementing 10 U.S.C. 172.

NOTE:

This does not circumvent Secretary of Labor authority over other health/safety matters in the same operations. For example, a workplace in a munitions depot subject to DoD explosives safety standards is subject to OSHA jurisdiction for matters relating to machine guarding, noise, etc.

g. Installation commanders shall immediately forward requests to inspect or investigate a contractor workplace, on a Navy shore installation involving handling or storage of ammunition or explosives, nuclear facilities or nuclear weapons by message to Commander, Naval Sea Systems Command (COMNAVSEASYSCOM) with a copy to CNO (N4). All such requests shall identify the contractor workplace involved and furnish all other immediately available details. Installation commanders shall withhold access pending receipt of reply. Where granted, access shall be subject to the requirements of this manual and any conditions contained in the COMNAVSEASYSCOM reply. COMNAVSEASYSCOM shall furnish a reply as quickly as possible after receipt of the request.

h. Installation commanders shall not provide DoD contractors with advance notice of OSH inspections by Federal or State OSHA officials except:

(1) In cases of apparent imminent danger to Navy or contractor employees,

(2) When specifically requested by Federal OSHA or State OSHA officials.

NOTE

Any person who violates the foregoing is subject to a fine of not more than \$ 1,000 or to imprisonment for not more than 6 months, or both.

i. When Federal or State safety and health officials require entry into a closed area to accomplish the purpose of their visit, and they cannot effectively be prevented from access to classified material by means such as covering the material to deny visual access, the following procedures apply:

(1) The Navy shore installation commander or the contractor, as appropriate, shall immediately notify the OSHA official and the Navy activity exercising security supervision over the contractor's workplace of the need for a personnel security clearance to enter the closed area.

(2) In the case of State OSHA officials or other State safety and health officials, the Navy security activity, after verifying the need for a personnel security clearance, shall in coordination with the State official, request the cognizant security office to contact the nearest OSHA regional or area office for a cleared Federal OSHA official to conduct the necessary inspection of the closed area.

(3) In the case of Federal OSHA officials, the Navy security activity, after verifying the need for a personnel security clearance, shall contact the appropriate cognizant security office and request:

(a) Verification of the Federal OSHA official's personnel security clearance

(b) Expedient processing of the visit request under reference 11-2. If the official's name is not on the list of cleared Federal OSHA personnel maintained by the cognizant security office, the Navy security activity shall request the cognizant security office to contact the OSHA regional or area office and request an appropriately cleared Federal OSHA official.

j. Federal or State OSHA officials or other state safety and health officials shall not take photographs on any Navy shore installation. Only Navy personnel or cleared contractor personnel shall take photographs requested by any such officials. Navy or contractor personnel shall not deliver photographs to the requesting official until all film, negatives, and photographs have been fully screened and classified by proper Navy authority, as appropriate, in the interest of national security. Activities shall forward further requests, by such officials, for documented data, sketches of military installations and equipment, reports or design information (e.g., noise sound levels, profiles, etc.) to the appropriate screening official for similar action. Screening officials shall normally complete this process within a period of 15 working days from receipt of the material.

k. Representatives of the Navy shore installation commander and the ACO (if appropriate), may accompany Federal OSHA and State OSHA officials on inspections and investigations. Representatives of the contractor and contractor employees may accompany these officials where requisite security clearances are verified.

l. Federal OSHA or State OSHA officials shall have access to, and be provided with, copies of records and reports pertinent to specific Navy contractor accident investigations, upon request, unless prohibited from release by the Privacy Act or exempted from release under the Freedom of Information Act.

m. When the cognizant engineering field division (EFD) of the Naval Facilities Engineering Command (COMNAVFACENGCOM) has defined the boundaries, Navy shore installation com-

manders should advise the applicable state OSHA office in writing of any areas on the installation that are located within an area of exclusive Federal jurisdiction.

n. Navy shore installation commanders shall refer all information regarding citations and notices issued to Navy contractors for violations of OSHA, state OSHA or other State safety and health standards involving DoD-furnished equipment, facilities or other property to the responsible ACO for appropriate action. Shore installation commanders shall send a copy to CNO (N45).

o. DoD policy states that the contractor is responsible for resolving issues related to citations and initiating requests for delays in compliance with variations, tolerances or exemptions from applicable OSH standards.

p. Installation commanders shall advise CNO (N4), via the chain of command, of any situation resulting from compliance with these procedures that could impair the Navy's ability to properly carry out its mission in support of the national defense or adversely affect the national security.

1103. Federal and State Occupational Safety and Health Inspections of Contractor Workplaces Aboard Navy Ships

This section provides guidance and procedures regarding requests by Federal or State OSH officials to inspect or investigate contractor workplaces aboard Navy ships in port or located at associated facilities (e.g., repair operations).

a. Subject to the conditions and exceptions stated below, Navy afloat activities shall permit Federal OSHA compliance officials, to be taken aboard U.S. Navy ships in port to conduct safety and health inspections and investigations of contractor workplaces. Commanding officers shall not grant State occupational safety and health officials access aboard naval ships and service craft or in areas of exclusive Federal jurisdiction.

(1) Except for the limitations imposed in paragraphs 1103a(2) and (3), commanding officers shall provide OSHA compliance officials, upon request, immediate access to contractor workplaces where contractor employees are currently performing work or where the contractor has equipment or other work-related material or paraphernalia in the workplace under a government contract.

(2) If the requested inspection/investigation involves handling or storage of ammunition or explosives, commanding officers shall deny the request for access. The commanding officer shall make a report of any such request to COMNAVSEASYS COM by message, with a copy to CNO (N4).

(3) With respect to nuclear-propulsion plant spaces on nuclear powered ships, related nuclear shipyard facilities ashore or afloat, shipboard nuclear support facilities or nuclear weapons areas, commanding officers shall forward the request for access by message and by the telephone to COMNAVSEASYS COM with a copy to CNO (N4). All message requests shall identify the contractor workplace involved and furnish all other immediately available details. Commanding officers shall withhold access pending receipt of the reply. Where granted, ac-

cess shall be subject to the requirements of this chapter and any conditions imposed in the COMNAVSEASYSCOM reply. COMNAVSEASYSCOM shall furnish a reply expeditiously, and, if possible, within a period of 3 working hours from receipt of the request.

(4) In cases of non-nuclear ships or nuclear ships, with the exceptions stated in paragraphs 1103a(2) and (3), and per the procedures in paragraphs 1103a(1), commanding officers shall grant access to contractor workplaces (as defined above) after requesting Federal OSHA compliance officials to conduct inspections and investigations of such workplaces within reasonable limits and in a reasonable manner during regular working hours (except when other times are mutually agreed upon by the concerned officials).

(5) OSHA officials shall not take photographs. Navy personnel shall take any photographs requested by OSHA officials. Commanding officers shall tentatively classify these photographs as confidential, and shall not deliver them to OSHA compliance officials until all film, negatives and photographs have been sent to COMNAVSEASYSCOM and fully screened and censored, as appropriate, in the interest of national security. Commanding officers shall forward any design or system performance data (e.g., recordings of noise sound level profiles, etc.) to COMNAVSEASYSCOM for screening, as above, prior to release. COMNAVSEASYSCOM shall complete this process within a period of 15 working days from the receipt of material.

(6) Commanding officers shall not give OSHA officials copies of any Federal records or reports. If OSHA officials request access to Navy records or reports, commanding officers shall forward the request to the appropriate releasing officials.

(7) In addition to presenting appropriate identification credentials, commanding officers shall require all OSHA compliance officials to possess appropriate security clearance for entry into areas where the contractor workplace is located.

(8) Representatives of the ship's commanding officer, and, if appropriate, the ACO and the commanding officer or officer in charge of the shore activity at which the ship is located, shall accompany the OSHA compliance official at all times during the physical inspection of contractor workplaces. A representative of the contractor and a representative of the contractor's employees may accompany the OSHA compliance officials during the inspection/investigation provided proper security clearances are verified. If there is no authorized contractor employee representative, the OSHA compliance officer is only authorized to consult with a reasonable number of contractor employees concerning matters of health and safety in pertinent workplaces.

(9) OSHA compliance officials may privately question contractors, contractor employees or their authorized representatives during their inspection.

b. Unless the responsible OSHA official specifically requests it, installation commanders and ship commanding officers shall not provide contractors with advance notice of OSHA inspections, except in cases of apparent imminent danger to Navy or contractor employees. Any person who violates the foregoing is subject to a fine of not more than \$ 1,000 or to imprisonment of not more than 6 months, or both.

c. Ship commanding officers shall report full information regarding any OSHA inspection/investigation aboard ship in writing to the CNO (N4) with a copy to COMNAVSEASYSCOM.

1104. Federal Occupational Safety and Health Inspections of Navy Civilian Workplaces

a. Under the provisions of reference 11-1, Federal OSH officials, acting as representatives of the Secretary of Labor, may conduct announced or unannounced inspections at all Navy workplaces except military unique workplaces, workplaces staffed exclusively with military personnel, or workplaces located in foreign countries. Such inspections may be in response to a complaint from a Navy civilian employee or employee representative. They may schedule these inspections as part of DOL's targeted inspection program or as part of an evaluation of the DoD OSH program. These inspections may also be solely at the discretion of the Secretary of Labor.

b. In addition to the exclusions mentioned above, the Secretary of Labor has no authority over nuclear safety/health or explosive safety aspects of operations specifically covered by:

(1) Any State nuclear safety or health standard or regulation implementing 42 U.S.C. 2021

(2) Any nuclear safety or health standard or regulation implementing 42 U.S.C. Section 2021, 2021(b) or 2201(b)

(3) Any explosive safety standard or regulation implementing 10 U.S.C 172.

NOTE:

This does not circumvent Secretary of Labor authority over other health/safety matters in the same operations. For example, a workplace in a munitions depot, subject to DoD explosive safety standards, is subject to OSHA jurisdictions for matters relating to machine guarding, noise, etc.

c. Navy activities employing civilians shall designate a coordinator with whom Federal OSHA officials may interface for inspection purposes.

d. Federal OSHA officials shall initially report to the Navy installation commander or his/her authorized representative, present identification credentials, and state the purpose of the visit. Installation commanders shall admit these officials to conduct inspections of authorized Navy workplaces without delay, at reasonable times and in a reasonable manner. If the inspection is to involve areas/operations excluded under the provisions of paragraphs 1104a or 1104b, installation commanders shall withhold permission for immediate access and forward a request for access by message and by telephone to CNO (N45) with copies to the appropriate chain of command having management cognizance. All requests shall identify the exclusion under consideration, and CNO (N45) shall furnish an expeditious reply upon receipt of the message, as well as identifying other pertinent details regarding the inspection that must be performed.

Navy installation commanders shall require Federal OSHA inspectors to show appropriate security clearances if they require entry into closed areas. Federal OSHA officials must verify all security clearances. Navy/Marine Corps personnel shall take any photographs these officials request in these areas. Navy installation commanders shall tentatively classify such photo-

graphs CONFIDENTIAL and shall not deliver them to Federal officials until higher authority (i.e., Echelon Three commanders) have screened/classified all film, negatives and photographs as appropriate, in the interest of national security

f. Representatives of the activity commander shall accompany Federal OSHA inspectors at all times.

g. Upon request, Navy installation commanders shall grant Federal OSHA officials access to available safety and health information related to Navy civilian employees. Examples are data on hazardous materials, copies of recent inspection reports, employee hazard reports and information on the status of abatement projects, provided such information is not specifically required by executive order to be classified in the interest of national defense or foreign policy and is otherwise releasable. Installation commanders shall also grant Federal OSHA officials access to and release copies of records and reports pertinent to specific accident investigations involving Navy civilian employees, provided such release is consistent with the Privacy Act and other applicable laws and regulations. With respect to the release of records pertinent to specific accident investigations involving Navy civilian employees, Navy installation commanders shall:

(1) Refer requests for copies of Judge Advocate General (JAG) investigative reports to the JAG (Code 35)

(2) Refer requests for copies of accident investigation reports to Commander, Naval Safety Center (COMNAV SAFECEN) (Code 03), per Chapter 14.

h. Federal OSHA officials may interview or be accompanied by civilian employees or employee representatives with appropriate clearances during their visit.

i. If Federal OSHA officials issue reports or notices of unsafe or unhealthful working conditions discovered during their inspections, the commander of the inspected Navy activity shall forward a summary report with a copy of such notices immediately to CNO (N45) and COMNAVSAFECEN (Code 41). The commanding officer shall provide information copies to the chain of command having management cognizance. The commanding officer shall treat deficiencies discovered during such inspections in the same manner as deficiencies noted during internal Navy inspections.

j. If reports of inspections by Federal OSHA officials require a response, the commander of the inspected Navy activity shall provide such responses. Commands may participate in informal conferences with OSHA officials, and utilize established OSHA review/appeal procedures for Federal agencies in developing final resolutions to issues raised in OSHA inspections. Parent commands may require headquarters coordination prior to such responses. The activity commander shall provide copies of such responses to CNO (N45) and to the chain of command having management cognizance. Unresolved conflicts may require interagency resolution via DoD and DOL channels.

(1) Replies to OSHA violation notices shall be within time frames assigned by OSHA, shall specifically state abatement action and shall include appropriate backup information.

(2) If the command cannot resolve deficiency or abatement actions at the local level, it shall refer them up the chain of command for resolution.

1105. OSHA Targeted Inspections

Under Federal Agency Program requirements, OSHA maintains a targeted inspection program for Federal installations. Each fiscal year, OSHA targets Federal installations for inspections based on the frequency rate of their occupational injury and illness cases. If a rate is above the threshold established by OSHA (usually the average Federal Agency lost time case rate), OSHA will target the activity for inspection. Rate data is taken from Federal Employee Compensation Act (FECA) claims records. As part of the targeting program, OSHA requires each activity targeted for inspection to develop a targeting plan. The targeting plan shall identify high injury frequency work areas and specify actions to reduce mishap experiences. OSHA will notify activities targeted, by letter, at the beginning of the fiscal year and request that they prepare targeting plans. Activities may use activity self-assessment improvement plans, as discussed in chapter 5, as a substitute for the targeting plans. Targeted activities shall forward copies of the plans to the chain of command and to CNO (N45). Targeted activities shall notify the chain of command and CNO (N45) of inspection dates, and provide copies of reports and replies to reports.

1106. Overall Information Security Requirements

State and Federal agencies exercising their regulatory authorities in the area of occupational safety and health will periodically visit Navy activities. Activities need to pay particular attention to ensure that Navy regulations and Federal statutes governing the control and protection of classified and sensitive unclassified information are properly enforced while avoiding any interference with the legitimate regulatory purpose being served. Commanders of Navy activities shall use the following guidelines:

- a. Permit only personnel with appropriate security clearances access to classified information, under reference 11-2. Limit such access to classified information required to resolve the matter at hand.
- b. Navy commands handle a considerable amount of sensitive unclassified information controlled under Navy security regulations, Federal Export Control regulations and other government-wide requirements. While access to this information does not require a security clearance, it is important that the holder and recipient of the information comply with applicable security regulations governing dissemination and protection of the information.
- c. Place emphasis on the fact that classified or unclassified sensitive information must be controlled. Thus, if the recipient of controlled Navy information prepares reports or other documents based on the information, advise the recipient to seek advice from qualified Navy security personnel to ensure compliance with Federal laws and Navy regulations.
- d. Classified or sensitive unclassified information produced during litigation or administrative proceedings also requires protection. Seek advice from the Office of the Judge Advocate General (Navy JAG) or cognizant Office of General Counsel (OGC) to ensure the classified or sensitive unclassified information is properly protected per reference 11-2.

Chapter 11

References

- 11-1. DoD Instruction 6055.1 of 19 Aug 98, Department of Defense Occupational Safety and Health (OSH) Program (NOTAL)
- 11-2. SECNAV Instruction 5510.30A of 3 Mar 99, Department of Navy Personnel Security Program
- 11-3. SECNAV Instruction 5510.36A of 17 Mar 99, Department of Navy (DON) Information Security Program (ISP) Regulation.

Appendix 11-A

**Inspection of Department of the Navy Workplaces by
Federal and State OSH Representatives**

	SHORE			AFLOAT		
	Contractor Workplaces	Civilian Employees' Workplaces	Exclusively Military Workplaces	Contractor Workplaces	Civilian Workplaces	Exclusively Military Workplaces
Federal OSH Representatives	YES 4,5	YES 4,5	NO	YES 3,4,5	YES 3,4,5	NO
State OSH Representatives	YES 1,2,4,5	NO	NO	NO	NO	NO

NOTES:

1. State OSH plan must be approved by the Department of Labor. If State plan is not approved, access may be denied. However, States without approved OSH plan may inspect contractor worksites only if there is no relevant Federal OSH standard applicable to the contractor workplace.
2. If the Navy facility is in an area of exclusive Federal jurisdiction, State OSH representatives have no legal authority on the station and may be denied access to the facility.
3. Ships or service craft must be in port; Navy Department will not transport Federal OSHA representatives to ships or service craft that are underway.
4. Federal and State OSH representatives have no jurisdiction over military unique operations or equipment. In addition, these officials are not authorized to inspect workplaces or operations for compliance with any standard implementing 10 U.S.C 172 (explosive safety) or 42 U.S.C. Section, 2012, 2021, or 2022 (nuclear safety).
5. Inspections may be announced or unannounced.

CHAPTER 12

HAZARD ABATEMENT PROGRAM

1201. Discussion

a. The Navy incurs significant costs every year as a result of injuries, illnesses and property damage resulting from workplace hazards. Therefore, it is essential that the Navy develop and maintain programs to eliminate or control all identified hazards in a systematic manner.

b. Navy activities shall utilize the policy guidance discussed in this chapter to develop occupational safety and health (OSH) hazard abatement (HA) programs. These programs place the primary responsibility for corrective action upon shore commanders, with assistance, as required, from higher level commands.

c. Exclusions. Guidance contained here does not apply to:

(1) Government-owned contractor-operated (GOCO) facilities. Policy for these facilities is set forth in the Federal Acquisition Regulations (FAR).

(2) The correction of deficiencies associated with design or operation of uniquely military workplaces (such as weapon systems), aircraft engineering change proposals to improve safety of flight or ship alterations to improve fire protection or damage control

(3) Deficiencies involving other Department of Defense (DoD) components or other Federal agencies. Correction of deficiencies that are the responsibility of another DoD component, Federal agency or private organization shall be brought to the attention of the appropriate party for corrective action. The Federal Property Management Regulations (reference 12-1) describes procedures to follow with the General Services Administration (GSA). Executive Order (EO) 12196 makes the GSA responsible for abating hazardous conditions in GSA leased facilities. Commands shall refer problems that cannot be resolved to Deputy Under Secretary of Defense (Environmental Security) (DUSD (ES)) through the appropriate chain of command.

1202. Hazard Abatement Processing and Tracking

Hazards can be identified through annual inspections, industrial hygiene surveys, employee hazard reports and other inspections. Regardless of the hazard identification method, activities shall process the hazard as follows:

a. Risk Assessment. The activity OSH office shall assign each identified/validated hazard, that cannot be corrected immediately, a risk assessment code (RAC). The RAC represents the degree of risk associated with the hazard and combines the elements of hazard severity and mishap probability, taking into account potential health

effects from the hazard. Appendix 12-A provides instructions for calculating the RAC for asbestos deficiencies.

(1) Hazard Severity. The hazard severity is an assessment of the worst reasonably expected consequence, defined by degree of injury or occupational illness which is likely to occur as a result of a hazard. Activities shall assign hazard severity categories by Roman numeral according to the following criteria:

- (a) Category I - Catastrophic: The hazard may cause death.
- (b) Category II - Critical: May cause severe injury or severe occupational illness.
- (c) Category III - Marginal: May cause minor injury or minor occupational illness.
- (d) Category IV - Negligible: Probably would not affect personnel safety or health, but is, nevertheless, in violation of a Navy Occupational Safety and Health (NAVOSH) standard.

(2) Mishap Probability. The mishap probability is the probability that a hazard will result in a mishap, based on an assessment of such factors as location, exposure in terms of cycles or hours of operation and affected population. Activities shall assign a letter to mishap probability according to the following criteria:

- (a) Subcategory A - Likely to occur immediately
- (b) Subcategory B - Probably will occur in time
- (c) Subcategory C - Possible to occur in time
- (d) Subcategory D - Unlikely to occur.

(3) Risk Assessment Code. The RAC is an expression of risk which combines the elements of hazard severity and mishap probability. Using the matrix shown below, the RAC is expressed as a single Arabic number that can be used to help determine HA priorities.

		<u>Mishap Probability</u>			
<u>Hazard Severity</u>		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
I	1	1	2	3	
II	1	2	3	4	
III	2	3	4	5	

IV 3 4 5 5

RAC

- 1 - Critical
- 2 - Serious
- 3 - Moderate
- 4 - Minor
- 5 - Negligible

b. NAVOSH Deficiency Notice. The activity OSH office shall describe workplace hazards with a RAC of 1, 2, or 3 that cannot be corrected immediately, in Section A of a NAVOSH Deficiency Notice, OPNAV 5100/12, (see appendix 9-B). The OSH office shall forward a copy of the notice to the official in charge of the operation where the hazard exists. The workplace supervisor shall post a copy of the notice in the area of the hazard until the hazard has been corrected. The OSH office shall update the posted notice, as necessary, to accurately reflect the status of the abatement action and required interim controls.

NOTES:

1. Activities may distribute and post a computer-generated form that includes all the information required by OPNAV 5100/12.
2. The activity OSH office shall transcribe RAC 1, 2 and 3 hazards reported by higher echelon OSH personnel (Oversight Inspections and Command Inspections) or the Occupational Safety and Health Administration (OSHA) to NAVOSH Deficiency Notices. The activity OSH office may also use the notices for documenting the correction of RAC 4 and 5 hazards as deemed appropriate,

The official in charge of the operation shall take prompt action to correct the hazard and within 30 days of the date of the notice, he/she shall complete Section B of the NAVOSH Deficiency Notice and return a copy to the activity OSH office. Activities shall implement interim protective measures pending permanent abatement and list interim corrections on the notice. The notice shall also indicate the status of the hazard including whether or not the hazard has been corrected and specific abatement action taken.

c. Abatement Plans. Activities shall record hazards assigned RACs 1, 2, or 3 that require more than 30 days for correction in a formal HA plan. This plan shall include the following standard data for each hazard (or logical grouping of similar hazards):

- (1) Dates of hazard identification
- (2) Location of the hazard(s)
- (3) Description of the hazard(s) including reference to applicable standards

(4) Calculated RAC or estimated RAC (with hazard severity, probability of single occurrence and annual personnel exposure cited separately)

(5) Interim control measures in effect

(6) Description of the abatement action, including estimated cost and completion date

(7) Abatement priority (see section 1205)

(8) Close-out statement, indicating: completed abatement action and cost, with date of completed action; or process discontinued or worksite vacated. A computerized file is acceptable, vice the hard copy, as long as it contains—all of the required close-out information. The OSH office shall make the HA plan available for review locally by recognized employee organizations, where applicable.

NOTE:

Activities may use a file of NAVOSH Deficiency Notices, appropriately completed, as the abatement plan. Activities with fewer than 50 annual deficiencies or projects that will take more than 30 days to correct, may use this approach. Activities with more than 50 deficiencies or projects annually that will take more than 30 days to correct shall develop a formal HA Plan and establish priorities for each project listed.

1203. Interim Controls

Activities may be unable to immediately abate deficiencies under normal working conditions, and some hazards may require temporary deviation from NAVOSH standards. Therefore, activities shall establish appropriate interim controls as soon as they identify the deficiency. OSH Offices shall document such controls on the NAVOSH Deficiency Notice per appendix 9-B. The OSH office shall review and approve interim protective measures in effect for more than 30 days and revise, as appropriate.

1204. Hazard Abatement Project Development

The identification of a hazardous condition and the development of a deficiency abatement project require the close cooperation of the activity's facilities management and OSH personnel. Shore activities can obtain specific engineering assistance from the cognizant Naval Facilities Engineering Command (COMNAVFACENGCOM) Engineering Field Division or Activity (EFD/A) via an Engineering Service Request. The proposed project should fully correct the hazard in the most effective manner.

a. Local Funding. Navy programming and budget directives (e.g., Navy Comptroller (NAVCOMPT) Manual) provide general guidance for preparation and submission of budgets, via the chain of command. Activity budgets shall include items for correction of OSH deficiencies within the local commanding officer's funding authority.

b. Centrally Managed NAVOSH Funding. Activities shall submit projects to correct hazards that are beyond the funding capability of the local commander. Activities shall submit projects to COMNAVFACENGCOM and their major claimant in coordination with their facilities manager and/or Regional Engineer utilizing the web-based Hazard Abatement Program.

(1) Project Acceptance Criteria. To be considered for central funding, projects must meet the following criteria:

(a) Since Operation and Maintenance, Navy (O&M, N) funds will be used for minor construction, repair and construction/procurement of installed equipment as defined in reference 12-2.

1. Funds must be for non-Navy Working Capital Fund (non-NWCF) activities only.

2. Ranges for centrally managed HA funds are as follows:

a. Minor construction: \$ 100,000 to \$ 1,000,000

NOTE:

Minor construction with O&M, N funds is typically limited to \$ 300,000 but the National Defense Authorization Act for fiscal year 1996, P.L. 105-106, section 2811 amended title 10, U.S.C., section 2805 (c) to allow use of O&M, N funds for construction costs up to \$ 1,000,000 for projects "intended solely to correct a deficiency that is life-threatening, health threatening, or safety threatening."

b. Repair: \$ 100,000 to \$ 1,000,000.

c. Ergonomics: equal to or more than \$ 10,000.

(b) Activities may only submit projects correcting deficiencies with a RAC of 1, 2, or 3.

(c) Projects must be for the protection of safety and health vice protection of property. For example, installation of fire alarms, emergency egress, and other life safety projects for the emergency evacuation of personnel is acceptable. Activities may not submit the installation of sprinkler systems to protect property.

(d) HA funds will pay for asbestos projects only if the asbestos is friable, accessible and damaged or the asbestos is in a location where it is subject to frequent damage even though immediately repaired by emergency actions.

(e) Activities can submit upgrading projects if they are to alleviate severe hazardous conditions. For example, projects that provide guardrails where none exist may be submitted. Projects to raise guardrails from 38 to 42 inches to meet NAVOSH standards would not be considered as correcting severe hazards.

(2) Unauthorized Projects. Projects which normally do not qualify for central HA funding include the following:

(a) Projects that are clearly due to the lack of maintenance or repair or have been expanded beyond NAVOSH scope to include such elements. Activities shall fund the abatement of hazards developed due to wear and tear of facilities and equipment from appropriate activity or claimant funds,

(b) Projects involving facilities owned (On Plant Property Accounts) by Navy Working Capital Fund (NWCF) activities

(c) Projects for environmental cleanup, compliance or protection

(d) Projects to provide accommodation for the handicapped. These are covered under other programs.

(e) Projects for U.S. Marine Corps facilities

(f) Projects for government- owned, contractor-operated (GOCO) facilities.

(g) Projects for purchase of ergonomic furniture

(3) Project Submissions

(a) Activity OSH offices shall request projects via the internet using the on line HA database. Instructions for using the on line database will be issued by NAVFACENGCOM via the major claimants. The worksheet in appendix 12-B can be used to collect the necessary information prior to going on line but this form is NOT to be submitted as a project request.

(b) Prior to submitting an application, OSH offices shall consult with both the Echelon Two OSH director and the facilities manager. They shall coordinate the submission of projects with local activity facilities managers, but submission is, nonetheless, the responsibility of the OSH manager. The OSH manager shall consult with facilities personnel to determine such issues as existing construction, repair or demolition plans that would abate the hazard as well as the replacement cost of the

tion plans that would abate the hazard as well as the replacement cost of the facility in question.

(c) In their project requests, OSH managers shall fully describe and document the problem and provide all information necessary for prioritization. They shall show a clear violation of NAVOSH standards in their project descriptions and cite the standards violated.

1205. Prioritization of Hazard Abatement Projects

In any given year, the backlog of deficiencies may exceed the funds available for NAVOSH projects. It is, therefore, necessary that the Navy have a consistent and systematic methodology for the prioritization of these projects. In order to ensure that projects of highest importance receive first consideration, the Navy prioritizes projects as follows:

a. Locally Funded Projects. Activity OSH offices shall prioritize projects that do not meet the criteria for centrally managed funding under the NAVOSH HA program based on the RAC assigned to each identified hazard. See section 1202a for RACs. If several projects for correction of hazards with identical RACs exist, the activity OSH office shall assign priorities based on the number of persons potentially exposed to the hazard and the total cost. All public works center (PWC) commanding officers and activity facility engineers shall ensure that health and safety projects receive full consideration and are appropriately prioritized for execution with other local activity special projects.

b. Centrally Funded Projects. COMNAVFACEGCOM shall assign an abatement priority number (APN) per reference 12-3 for all proposed NAVOSH HA projects submitted. The APN which comprises the RAC and cost effectiveness index will be used in determining abatement priorities.

1206. Responsibilities

a. Shore activity commanding officers shall:

(1) Identify and correct hazards and maintain a current HA Plan with priorities established for each project listed. If the HA plan is maintained by the regional OSH office, it shall be done in such a manner that specific activity information (or plan) is readily available.

(2) Forward projects via the prescribed submission chain for hazards that cannot be corrected through local resources.

(3) Review, prioritize and maintain current active projects.

b. Commander, Naval Facilities Engineering Command shall:

(1) Submit to CNO(N45), by 15 November each year, a proposed NAVOSH HA program project execution plan per section 1204.

(2) Develop, prepare and submit, via the chain of command, budget documentation for the NAVOSH HA program.

(3) Provide to CNO, major claimants, sub-claimants and activities, management information, as may be necessary, relative to the NAVOSH HA program.

(4) Provide engineering review of all NAVOSH HA projects approved by major claimants.

(5) Manage the design and construction of NAVOSH HA projects per established procedures.

Chapter 12

References

12-1. Title 41 CFR 101, Federal Property Management Regulations, 1 Jul 1997

12-2. OPNAVINST 11010.20F of 7 Jun 96, Facilities Projects Manual (NOTAL)

12-3. DoD Instruction 6055.1 of 19 Aug 98, Department of Defense Safety and Occupational Health (SOH) Program (NOTAL)

Appendix 12-A

Instructions for Determining Risk Assessment Code (RAC) for Asbestos Projects

Assign a risk assessment code (RAC) to asbestos projects using the following methodology derived from DODINST 6055.1 of 19 August 1998.

1. **Probability**: determine the number of people exposed to asbestos then determine the number of hours per week the average person is exposed. Note the letter where the row and column intersect. This is the probability.

NO. OF PEOPLE	HOURS/WEEK		
	1-8	9-40	> 40
1-4	D	C	B
5-9	C	C	B
10-49	C	B	A
50 or more	B	B	A

2. **Hazard Severity**: determine the severity based either on the naval asbestos facility score (NAFS) if available in the activity's asbestos inventory or from a judgment of the condition of the asbestos involved. The resulting Roman numeral is the hazard severity. (For more information on NAFS see Naval Facilities Engineering Service Center Pub SP-2027-ENV of Sep 97, Asbestos Control Program Operations and Maintenance Plan.) (NOTAL)

	SEVERITY
NAFS=66-102 or Severely Damaged	I
NAFS=33-65 or Damaged	II

3. **Risk Assessment Code** (RAC): an expression of risk which combines the elements of hazard severity and mishap probability. Using the matrix shown below, the RAC is expressed as a single Arabic numeral that can be used to help determine hazard abatement priorities.

HAZARD SEVERITY	PROBABILITY			
	A	B	C	D
I	1	1	2	3
II	1	2	3	NA

NOTE: NAFS less than 33 or undamaged asbestos are not considered to be a hazard in most cases. If you believe asbestos at your activity is an exception, complete a project application form with justification.

Appendix 12-B

HAZARD ABATEMENT PROJECT REQUEST WORKSHEET

ACTIVITY NAME AND ADDRESS:	Date submitted:
	Activity UIC:
	Major claimant:

PROJECT INFORMATION				
1. Project title: <i>(Describe action to abate/eliminate the hazard)</i>				
2. Project No.	3. Estimated Cost (\$K)	4. Risk Assessment Code <i>(Circle one)</i>	Probability	Severity
		1 2 3 _ _		
5. Problem: No. of people regularly exposed to the hazard:				
6. Proposed Corrective Action:				
7. Applicable Standards/Regulations:				
8. Citations (OSHA, STATE AGENCIES, NOIU, ETC.):				
9. Interim Controls:				
10. Points Of Contact <i>(Enter All Applicable)</i> :				
Function Name	Phone	Fax	Internet E-mail	
a. NAVOSH				
b. Facilities:				
c. Claimant:				

OPNAV 5100/19 (8-00)

Appendix 12-B

Enclosure (1)

Instruction for Preparation of Hazard Abatement Project Request Worksheet

This worksheet can be used to collect data for entry in the HA program on line. All Navy activities except Navy Working Capital Fund activities are eligible to apply for funding. (Marine Corps activities are not eligible since the Marine Corps has a separate OSH program).

CRITERIA FOR PROJECT ACCEPTANCE:

- ◆ Projects must be for protection of personnel. Property protection projects will not be funded.
- ◆ Projects for environmental cleanup, compliance, or protection will not be funded by the HA program.
- ◆ Asbestos projects will be funded only if the asbestos is friable, accessible, and damaged.
- ◆ Government-Owned Contractor-Operated (GOCO) facilities are not eligible.

INSTRUCTIONS: Most data elements should be self-explanatory. Once the information is gathered use the internet accessible on line HA database to submit projects.

1. Project Title: Enter a short phrase that describes the proposed action to abate/eliminate the hazard. e.g., "Eliminate fall hazards from aircraft, hangers 1,2, and 3" or "Remove hazardous paint solvent vapors in Bldg. 5". The title should make it clear that the project is to correct a safety and/or health hazard and is not a routine maintenance project, energy conservation project, or other project not related to safety and health.
2. Project No.: Provide only if a local project has been developed. Otherwise enter "N/A". This is usually in a format such as "R2-93", or "C003-94".
3. Cost Estimate: Estimates at this stage are for budget development and need to be reasonably accurate. Any acceptable method for cost estimating may be used.
4. Risk Assessment Code (RAC), Mishap Probability, and Hazard Severity: The RAC is a single digit determined according to the instructions in Chapter 12 of OPNAVINST 5100.23F. Circle the RAC and enter the Mishap Probability and Hazard Severity. (For asbestos projects refer to Appendix 12-A: "Risk Assessment Code (RAC) for Asbestos Projects").
5. Problem Description: Enter the number of employees regularly exposed to the hazard. Briefly describe the nature of the hazard (include information about injuries, near misses, etc., related to this hazard). Include a statement of what injury or illness the hazard might cause. Include industrial hygiene data or other survey data as appropriate. The description should be understandable to the general reader.
6. Proposed Corrective Action: This paragraph should answer the question "What will the project do and how well will it correct the deficiency?" Include numbers such as "...install climbing devices on 15 ladders." It should be understandable to the general reader.

Appendix 12-B

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7. Applicable Standards: Primarily Occupational Safety and Health Administration standards but could also include National Fire Protection Assoc., American National Standards Institute, American Society of Mechanical Engineers, etc. The standard must be specific to the hazard addressed.
8. Citations (if any): Enter the agency, date and nature of citation.
9. Interim Controls: Enter controls in place to protect people until a permanent engineering fix is installed. E.g., respirators, special procedures (describe), etc.
10. Consult with Echelon Two facilities and OSH personnel to determine if Major Claimant Actions will abate the hazard. Enter one Echelon Two person contacted in block 10.
11. Submit one or more digitized photographs (.jpg format preferred) with the request. The on line database has a facility for attaching digitized photographs as well as documents to the on line request.
12. Submit applications using ONLY the on line database. Instructions for using the database will be issued by NAVFACENGCOM via the major claimants. For additional information call your area HA program manager.

CHAPTER 13

NAVY OCCUPATIONAL SAFETY AND HEALTH COST DATA (SHORE ONLY)

1301. Discussion

a. The Navy is required to maintain occupational safety and health (OSH) program cost data for the Department of Defense (DoD), Congress and the Occupational Safety and Health Administration (OSHA).

b. The current Navy accounting system does not provide for the collection of some of the specific data required. Until the system is modified, each Navy activity must rely on its own ability to track the Navy Occupational Safety and Health (NAVOSH) program costs.

1302. Applicability

The requirements in this chapter apply to Navy headquarters commands. The following activities are excluded:

- a. Reserve Officer Training Corps (ROTC) units
- b. Industrial and/or research plants operated by private contractors (civil works)
- c. Petroleum reserves
- d. Military Assistance Advisory Groups and Defense Attache Offices
- e. All ships and aircraft
- f. All squadrons, wings, groups and other operational commands.

1303. Data Requirements

Each headquarters command shall submit the cost data described below to Chief of Naval Operations (CNO) (N45) by 15 January of each year and use OPNAV 5100/13 (Appendix 13-A) format for this purpose. The Navy requires a separate submission for each appropriation (e.g., Operations and Maintenance, Navy (O&M,N); research, test, development and evaluation (RTD&E); Navy Working Capital Fund (NWCF), etc.) to which activities charge NAVOSH expenditures. The Navy requires cost information for the past fiscal year. For those items where actual data is not available, activities shall provide estimates and indicate all estimates by an asterisk on the form. The Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) shall provide to CNO (N45), by 1 January each year, a summary of centrally-managed NAVOSH hazard abatement funds expended for the past fiscal year.

a. Personnel. Headquarters commands shall submit the manpower costs required to operate the NAVOSH program. They shall report the data in terms of the number of full-time equivalents (FTEs) and salary costs for both military and civilian employees considered to be part of the OSH office staff. The salary and FTEs of OSH personnel are subdivided into four categories: professional safety; occupational health professionals; clerical support personnel; and other. Activities must show the amounts for each of these categories in the appropriate columns. Include only full-time personnel charged to OSH. For collateral duty personnel, include the number of personnel, but do not include labor costs unless they are charged to an OSH account. Echelon One and Two commands shall

unless they are charged to an OSH account. Echelon One and Two commands shall consolidate data to include headquarters OSH personnel. Activities shall include medical technicians (laboratory technicians, X-ray technicians, etc.) who are involved in employee medical examination programs in this cost data if they support occupational health programs full-time. The activities to whom these employees belong will report the costs.

b. Training. Each year, headquarters commands shall report the total cost of all OSH-related training, attended by OSH staff (for example, tuition costs and course material charges), and any costs incurred by the headquarters command resulting from safety training for instructors/contractors teaching safety.

NOTE:

Report personnel costs (labor) and travel costs associated with training under "Personnel" and "Travel/Per Diem", respectively.

c. Travel/Per Diem. This item includes all travel and per diem costs that activities associate with attending OSH training, conducting inspections or visits, and attending meetings.

d. Supplies/Materials. This item includes the cost of all supplies and materials activities use in the NAVOSH program (whether purchased by the OSH office or not). Items are subdivided into two categories - personal protective equipment (PPE) and other. The PPE category includes the cost of items such as respirators, face shields, eye protectors, and earplugs. The "other" category includes the cost of signs, posters, publications, consumables, etc.

e. Equipment. This category includes the cost of all equipment, exclusive of equipment used to abate deficiencies, that the OSH staff requires and charges to safety accounts. Activities shall include costs for items such as an air sampling pump, sound level meter, computer software, etc. in this category.

NOTE:

Activities can purchase equipment via alternative appropriations (e.g., equipment with a unit cost of \$ 25,000 or more) such as Other Procurement, Navy (OPN) funds. Activities shall ensure that they provide reports for alternative appropriations.

f. Other Operating Expenses. This item includes any other charges to OSH accounts. Activities shall also report in this category any significant expenditures they normally budget separately at the Echelon Two command level. Some examples are gas free engineering, systems safety, laser safety, asbestos control, respiratory protection, hearing conservation, contractor support, hazardous material control, hazard abatement, etc. If activities use this line item, they shall ensure that these same expenditures are not already accounted for elsewhere.

g. Totals. The sum of each cost item indicated on lines 1 through 7 for the fiscal year.

1304. Responsibilities

Commanders of Echelon One and Two commands shall:

- a. Develop and issue procedures to collect the required cost data from subordinate activities
- b. Consolidate by appropriation the cost data submissions they receive from subordinate activities and forward to CNO (N45).

Appendix 13-A
Navy Occupational Safety and Health (NAVOSH) Program Costs

OPNAV 5100-21

NAVY OCCUPATIONAL SAFETY AND HEALTH (NAVOSH) PROGRAM COSTS							
APPROPRIATION (Circle One): O&M- N OPN MILCON NCWF RDT&E							
COST ELEMENT	PAST FISCAL YEAR						
	\$ (000)	FTE			COLLATERAL DUTY		
		# CIV	# MIL	# CONTR	# CIV	# MIL	CONTR
1. PERSONNEL							
a. Professional Safety							
b. Occupational Health Professionals							
c. Clerical Personnel							
d. Others on Staff							
2. TRAINING							
3. TRAVEL/PER DIEM							
4. SUPPLIES/MATERIALS							
a. PPE							
b. Other							
5. EQUIPMENT							
6. DEFICIENCY ABATEMENT (Local Funding)							
7. OTHER OPERATING EXPENSES							
TOTALS							
NAME OF PERSON SUBMITTING THIS DATA:							
DSN PHONE:				COMM PHONE:			

OPNAV 5100/13 (9-92)

CHAPTER 14

MISHAP INVESTIGATION, REPORTING, AND RECORDKEEPING

1401. Discussion

a. Mishaps that result in damage to Navy facilities and equipment or occupational injuries, illnesses or deaths to Navy personnel degrade operational readiness and increase operational costs. Investigation of such mishaps to identify causes and preventive actions, as well as establishing accurate recordkeeping, are essential to the success of the Navy Occupational Safety and Health (NAVOSH) program. Mishap investigations aimed at determining how and why the event occurred are necessary to prevent future occurrence of similar events. Accurate records are necessary to establish trends, to conduct analyses, and to assess the effectiveness of the overall NAVOSH program. Certain records are necessary to comply with Department of Labor (DOL) Federal agency recordkeeping and reporting requirements. Certain records for foreign national employees may also be necessary to meet host country standards. These records should be part of the mishap recordkeeping program.

b. This chapter includes procedures that apply to Navy mishap investigation, reporting and recordkeeping requirements for shore on-duty Navy personnel and Navy shore operational mishaps per reference 14-1. This chapter does not apply to the investigation or reporting of mishaps involving recreation, athletic and home safety; military off-duty; motor vehicles; and explosives. Mishap investigations and reporting in these areas will follow the procedures outlined in reference 14-2. Reference 14-3 includes procedures for investigating and reporting diving mishaps. Reference 14-4 provides procedures for investigating and reporting aircraft mishaps. The following areas are within the scope of this chapter:

(1) On-duty shore occupational injuries, occupational illnesses and occupational fatalities to:

(a) Navy military personnel (includes personnel attached to service craft and small boats that have a shore unit identification code (UIC))

(b) Navy and non-deployed Military Sealift Command (COMSC) civilian employees when resulting from the course of their employment. Reference 14-3 covers deployed COMSC civilians

(c) Other Department of Defense (DoD) and non-DoD component personnel assigned to the Navy.

(2) Accidental damage to government material (property) or equipment throughout the Navy and COMSC unless paragraphs 1408e(1-6) provide exemptions

(3) Navy operational mishaps

(4) Identification of hazardous conditions that may cause death, damage, injury or occupational illness as listed above.

1402. Types of Mishap Investigations

A complete comprehensive mishap investigation is an essential tool in identifying the causes of a mishap and thereby preventing recurrence. The reports required by this chapter are separate and independent of investigations required by the Manual of the Judge Advocate General (JAG). JAG investigations are used to determine accountability and culpability. The sole purpose of the safety investigation is mishap prevention, not the determination of accountability.

a. General Use Shore Safety Investigation Reports. Reporting activities shall use these reports for all safety mishaps required by this chapter. Although the primary purpose of these reports is mishap prevention, COMNAVSAFECEN may release them under Occupational Safety and Health Administration regulations or in response to Freedom of Information Act (FOIA) requests. Advise individuals providing information in connection with a general use shore safety investigation report (SIR) of the purpose and use of such information. Sample general use Advice to Witness statements are included in appendix 14-A.

b. Judge Advocate General (JAG) Manual Investigations. Conduct JAG investigations, including claims investigations, as required by the JAG Manual. The safety investigator(s) and the JAG Manual investigator(s) shall not be the same person(s). Nothing in this chapter prevents JAG Manual investigator(s) from access to the same non-privileged factual material or witnesses available to the safety investigator(s). Conduct the JAG Manual investigation independently and separately from the safety investigations mentioned above. Reports of these investigations shall not be made a part of JAG investigations.

c. Headquarters Command Investigations. The cognizant headquarters command shall initiate a mishap investigation when a Class A mishap or a mishap involving the inpatient hospitalization of three or more people occurs as the result of an operational mishap. If a fatality related to the mishap occurs within 6 months of the date of the mishap, headquarters shall determine on a case-by-case basis whether a headquarters investigation is required. In addition, CNO, COMNAVSAFECEN or the cognizant headquarters command may require a headquarters command investigation of other mishaps as appropriate. Refer to paragraph 1408b.

d. Criminal and Security Investigations. The Naval Criminal Investigative Service (NCIS) shall investigate any death occurring on a Navy installation, per SECNAVINST 5520.3B, except when the cause of death is medically attributable to disease or natural causes. When notified, NCIS will investigate the circumstances until criminal causality can reasonably be excluded. The investigations noted above must not compromise nor otherwise impede the NCIS investigation.

1403. Mishap Investigation Requirements

a. Shore activities shall conduct a safety investigation of every mishap, major or minor, and handle the investigation as a search for facts. The severity or significance of the mishap determines the extent of the investigation. The activity shall establish guidelines delineating roles and responsibilities for reporting and investigating all classes of mishaps. Military or civilian occupational safety and health (OSH) professionals trained per Section 1405 shall conduct mishap investigations of Class A and B mishaps. The OSH office shall ensure proper investigation of all mishaps and review all investigation reports. Management personnel may assist in mishap investigations; however, activities shall not use information they obtain through the safety

investigation for administrative or disciplinary action. The investigator shall complete a written report with firm, factual findings and recommendations for specific corrective action to be taken to prevent recurrence.

b. Activities shall report all mishaps meeting the reportable criteria in section 1408 directly to COMNAVSAFECEN using the appropriate format and shall place the notation, "GENERAL USE SHORE SAFETY INVESTIGATION REPORT" at the beginning of the report.

1404. Requirements to Ensure Reporting of All Mishaps

At all levels, the immediate supervisor has the greatest influence on mishap reporting. Activities shall take the following action to ensure that they report all mishaps:

a. Indoctrinate all subordinates, especially new arrivals, to report all mishaps no matter how small, as well as the "near misses" where only chance prevented a mishap. Ensure personnel fully appreciate that activities cannot correct hazardous conditions unless personnel conscientiously report them. For operational activities and forces afloat, references 14-3 and 14-5 contain internal reporting procedures.

b. Ensure supervisors report all mishaps to the activity OSH office immediately so the OSH office can initiate the appropriate action for the investigation.

1405. Mishap Investigation Training

Personnel who conduct Class A, B and C mishap investigations shall complete formal training in mishap investigation procedures and techniques. OSH professionals responsible for investigating activity level mishaps or Class A and B mishaps shall attend the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN) course, Mishap Investigation and Prevention (Ashore), course A-493-0078, or an equivalent course (as determined by the supervisor). Individual development plans (IDPs) for OSH professionals shall include provisions for providing this training, as necessary. OSH professionals with formal mishap investigation training may provide formal classroom training to others in the activity (e.g. supervisors) who may perform Class C and D mishap investigations.

1406. Collection/Dissemination of Mishap Information for SIRs

a. The Concept of Privilege. Military and Federal courts recognize information given under promises of confidentiality and the findings, conclusions and recommendations of mishap investigations and endorsers are protected under Executive Privilege. Although witnesses' names may be released, witness statements and the deliberative analyses of the mishap investigation are privileged. Any information that would not have been discovered but for the promise of confidentiality is likewise privileged. Promises of confidentiality may be given by members of the Mishap Investigation Board. Members must judge whether confidentiality is necessary to ensure that witness' full cooperation. Confidentiality must explicitly be given. When granted, the protected witness must sign an "Advice to Witness (Promise of Confidentiality)" form provided in appendix 14-A. When the witness' signature is impracticable, draft a Mishap Investigation Memorandum to File. Maintain all witness statement related documents and records with other mishap documents. Mishap Investigation Board members have long granted blanket promises of confidentiality to strengthen the interview process to learn mishap causes. Follow the restric-

tions on the use and release of unprotected testimony per this instruction. Any information directly calculated by the Mishap Investigation Board, or developed at the specific request of the investigation board, is privileged when disclosing that information would reveal the mishap investigation's deliberative process. Individual promises of confidentiality guarantee the information provided by witnesses will be used only for safety purposes.

(1) Privileged Information shall not be used:

(a) In any determination affecting the interest of an individual making a statement under assurances of confidentiality or involved in a mishap

(b) As evidence or to get evidence in determining the misconduct or line-of-duty status

(c) As evidence to determine the susceptibility of personnel to discipline

(d) As evidence in claims on behalf of the government

(e) As evidence to determine the liability of the government for property damage caused by a mishap

(f) As evidence before administrative bodies, such as Officer Evaluation Boards (USN) or Field Performance Boards (USMC)

(g) As evidence before, or as any part of, a JAG Manual Investigation Report

(h) In any other punitive or administrative action taken by the Department of the Navy (DON).

(i) In any investigation or report other than the SIR.

(j) As evidence in any court.

(2) The Purpose of Designating Information as Privileged. The purpose is to explain what designated information becomes privileged, understand privilege concepts and to conform with standardized Navy mishap investigation reporting processes with or without privileged information. Headquarters command SIRs will normally not contain privileged information. However, the mishap investigation process must:

(a) Overcome an individual's reluctance to reveal complete and candid information pertinent to the circumstances surrounding a mishap.

(b) Encourage mishap investigations and endorsers of SIRs to provide complete, open and forthright information, opinions and recommendations about a mishap.

b. Rationale. This is necessary because witnesses believe certain uses of the information could be detrimental to themselves, others involved in the mishap, or their command. They may also elect to withhold information by exercising their constitutional right to avoid self-incrimination. Activities must assure individuals that they may confide in safety investigators for

the mutual benefit of fellow service members without incurring personal jeopardy within the DON in the process. Witnesses are not sworn. Requiring them to do so is prohibited. Mishap investigators shall advise witnesses, in writing, why they are providing their statement and of the limitations placed on its release. Witnesses need not limit their statements to matters to which they could testify in court. Encourage witnesses to express opinions and speculate on possible causes of the mishap.

c. Witness Statements/Identities. Mishap investigation personnel shall not provide witness statements to any other activity except as authorized in this chapter. They shall advise individuals providing information in connection with a mishap investigation of the purpose and use of such information and provide the Safety Investigation Report Advice to Witness statement in appendix 14-A. Shore activities shall protect witness identities to the maximum extent permissible under exemption (b)(6) of the FOIA.

d. Photographs. Photographs of human injuries or remains may be exempt from disclosure under exemption b(6) of the FOIA.

e. Investigations. Mishap investigators shall thoroughly understand the distinction between safety mishap investigations and other investigations. Only in cases of a joint DoD investigation (for example, a U.S. Army and U.S. Navy mishap), that COMNAVSAFECEN or higher authority authorizes, shall any exchange of information and opinion outside Navy mishap investigation personnel occur. In such cases, cooperation between investigators may include division of labor, joint review of evidence, exchange of witness statements, and joint deliberations. In all cases, safety mishap investigations shall be independent and separate from all other investigations.

f. Investigators. Commanding officers shall not assign mishap investigation personnel to any other investigation of the same mishap such as a JAG Manual investigation, an Officer Evaluation Board (USN) or a Field Performance Board (USMC). Members of any Mishap Investigation Board shall not, nor may they be requested to, divulge their own opinion or any information which they arrived at, or to which they became privy, in their capacity as a member of a Mishap Investigation Board.

g. Independence of Mishap Investigation Reports. Do not append mishap investigation reports or extracts to, or include in, JAG Manual Investigation Reports or any other type of investigations. Likewise, to prevent any inference of association with disciplinary action, do not append reports of JAG Manual Investigation Reports or any other type of investigation report to any mishap investigation report.

h. Administrative Safeguards.

(1) Mishap investigators shall handle mishap investigation reports as General Use Safety Investigation Reports and shall include the following narrative at the beginning of the report:

"NARR/FOR OFFICIAL USE ONLY. THIS IS A GENERAL USE SAFETY INVESTIGATION REPORT TO BE USED FOR SAFETY PURPOSES AS DEFINED IN OPNAVINST 5100.23F."

(2) Mishap investigators and endorsers shall not send SIRs and SIR endorsements to non-naval activities. Only the CNO, Commandant of the Marine Corps (CMC), or COMNAVSAFECEN shall send SIRs or endorsements to non-naval activities.

(3) Endorsers of an SIR can forward the SIR to commands outside the original recipients only if it requires further endorsement or corrective action.

(4) Special Handling. The term "special handling" means that the Navy restricts circulation of SIRs and SIR endorsements to limit their use to the furtherance of safety. Recipients shall apply common sense to determine exactly what handling actions are appropriate. Uncontrolled distribution of SIRs (such as placement in reading racks, message boards or on bulletin boards) is inappropriate. Routing SIRs in file folders, which ensures only those who need to know their content for safety purposes, would be appropriate. Closely control addresses on Collective Address Designator (CAD) and Address Indicating Groups (AIG) messages. Include only commands or agencies routinely involved in the endorsing chain for mishaps.

(5) For Official Use Only. The Navy designates all reports required by this chapter For Official Use Only (FOUO). Refer to Department of Defense Freedom of Information Act (FOIA) Program of Sep 98 (DoD 5400.7-R) for instructions on handling material designated FOUO.

i. Dissemination of Essential Safety Information. When appropriate, COMNAVSAFECEN will share safety information gleaned from SIRs received under this chapter. COMNAVSAFECEN will extract essential safety information from the SIR and disseminate only that information to a particular media (e.g., lessons learned, Ashore article, safety advisory message, newsletter, correspondence concerning recommended corrective action, etc.). Expunge ("scrub" or "sanitize") from the SIRs all identifying data which could reveal the identity of any person, organization or event, then show the essential safety information which remains. When appropriate, COMNAVSAFECEN will readdress the SIR. The distribution of lessons learned depends on the subject. Activities may use general information to disseminate lessons learned.

j. Release of Information. Release of mishap information from SIRs shall be per this section unless otherwise authorized by CNO. Only COMNAVSAFECEN can release copies of SIRs submitted per this chapter. A violation of these provisions by military personnel is punishable under the Uniform Code of Military Justice (UCMJ) and forms the basis for disciplinary action against civilian employees.

(1) Release Based on the FOIA. Forward requests for information that either expresses or implies that they are based on the FOIA to COMNAVSAFECEN, Attention: Code 03.

(2) Release by an Individual Having Knowledge of SIRs. It is forbidden for anyone with knowledge of the contents of an SIR to release that information, except as this chapter permits. If an individual having knowledge of SIR contents receives a request for information, he/she shall forward the request to his/her commanding officer, who shall refer the requester to COMNAVSAFECEN, Attention: Code 03.

(3) Release to U.S. Navy, U.S. Marine Corps and other DON Activities. Commands shall forward requests for SIR information from Navy, Marine Corps, and other DON activities to COMNAVSAFECEN, Attention: Code 03.

(4) Release to Other U.S. Military Services. The Navy limits the exchange of safety program information between U.S. military services to their respective safety centers.

(5) Release to the News Media. DON Public Affairs Regulations (SECNAVINST 5720.44A) contain information on releasing mishap information to the media. The Navy shall, however, preserve the information in SIRs when dealing with the press, which is not releasable to the media.

(6) Release to Congress. Forward requests for information from Congress, Congressional committees or subcommittees, or staff members to CNO, CMC, or COMSC, as appropriate.

(7) Release to Relatives of Persons Involved in Shore Mishaps. In discussing a mishap with relatives of people involved in the mishap, personnel shall make no inference to causal factors. Commands shall not show, discuss with or give copies of a SIR to the next of kin or their agents or representatives without a proper FOIA request per paragraph 1406j(1).

(8) Subpoenas for Information. Commands shall refer any subpoenas for mishap information to the Office of the Judge Advocate General (Code 34), 1322 Patterson Avenue, Southeast, Suite 3000, Washington Navy Yard, Washington, DC 20374-5066 with copy to COMNAVSAFECEN, Attn: Code 03.

(9) Release to Technical Representatives, Defense Contract Administration Services (DCAS) Representatives and Contractors. Commands shall forward requests for mishap information from technical representatives, manufacturers, DCAS representatives, and contractors or their agents to COMNAVSAFECEN via the appropriate headquarters command. The endorsement of the headquarters command shall certify whether the requester requires the requested information for safety purposes with respect to product design or improvement. Any response shall include a warning to ensure the recipient uses the information for safety purposes only. The recipient shall not disclose the information to any other individual or entity.

(10) Release to Other Foreign Nations. Commands shall forward requests for mishap information from foreign governments to COMNAVSAFECEN, Attention: Code 03.

(11) Release of Privacy Information. Handle the names of individuals not involved in the mishap and the Social Security Numbers of all individuals in the report as directed by the applicable sections of Secretary of the Navy's (SECNAV) Privacy Act Instruction (SECNAVINST 5211.5D). To protect the privacy rights of surviving family members, do not release photographs of human remains or the autopsy report.

(12) Unspecified Cases. Commands shall forward requests other than above to COMNAVSAFECEN, Attention: Code 03.

1407. Safety Report Review

a. COMNAVSAFECEN shall provide a repository for SIRs. COMNAVSAFECEN shall review each mishap report to:

(1) Ensure adequacy of information for providing a reasonable representation of the mishap.

(2) Ensure personnel identify the causes of the mishap.

(3) Ensure that any local corrective action taken is appropriate.

(4) Consider the applicability of the included hazards to other commands for possible dissemination.

(5) Select those mishaps that are candidates for management review due to the severity of the mishap.

b. Management Review. COMNAVSAFECEN shall require the review of SIRs by appropriate levels of management where the severity or significance of the mishap warrants. Activities shall provide available information concerning the mishap and associated information from all sources to the appropriate manager for consideration and recommendation. The activity will provide recommended actions when appropriate.

c. Corrective Action Management. COMNAVSAFECEN will maintain current status information on significant recommendations for corrective action in safety and mishap prevention matters and initiate recommendations for corrective actions to competent authority.

1408. Mishap Reporting Procedures

a. General. As paragraph 1401a discusses, commands investigate mishaps to identify causes and preventive actions. The goal of mishap investigations is to determine how and why the event occurred to prevent future occurrence of similar events. In many cases, mishap investigations do not teach us anything new; they simply reinforce lessons learned many times before. The summary mishap reporting requirements of paragraph 1409 will capture data related to these mishaps so there is no need for individual mishap reporting. However, other cases do require individual mishap reports given the loss (or the potential for loss). Specifically, any case involving the following will require submission of a shore safety investigation report:

(1) Fatality

(2) Permanent Total or Partial Disability

NOTE:

While a significant threshold shift (hearing loss) is a permanent partial disability, such a case does not require submission of an SIR. Such cases are recorded on the log of occupational injuries and illnesses discussed in paragraph 1409.

(3) Hospitalization. Any occupational (on-duty) or operational mishap which results in the inpatient hospitalization of three or more personnel

(4) Weight Handling Equipment (WHE) Accident. Weight handling equipment (WHE) includes cranes and crane rigging gear. A WHE accident occurs when any one or more of the six elements (the crane; the operator; the riggers and crane walker; the rigging gear between the hook and the load; the load; and the crane's supporting structure) in the crane operating envelope fails to perform correctly during crane operation, including operation during maintenance or testing resulting in personnel injury or death, material or equipment damage, dropped load, derailment, two blocking, overload; or collision, including unplanned contact between the load, crane and/or other objects. A component failure is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components. The activity shall report WHE accidents to the Navy Crane Center per reference 14-6. The Navy Crane Center will provide a quarterly summary of WHE mishaps to COMNAVSAFECEN. WHE accidents need not be directly reported to COMNAVSAFECEN unless they involve a fatality, permanent total disability, hospitalization or other cases described in paragraph 1408.

(5) Confined Space Mishap. Any mishap occurring in any confined space per chapter 27 of this manual or NAVSEA S6470-AA-SAF-010, Gas Free Engineering Program, where personnel fail to follow confined space program elements. This includes any fatality, injury or material (property) damage that results from a fire in a confined space.

(6) Laser Exposure Incident. Any incident meeting the definition in appendix 22-A of this instruction

(7) RF Exposure Incident. Any incident meeting the explanation in appendix 22-C of this instruction

(8) Lockout/Tagout Mishaps. Any mishap involving the repair or maintenance of equipment or energy distribution systems attributed to a failure to use or follow lockout/tagout procedures as chapter 24 of this instruction requires

(9) Near Misses. Any near miss involving an industrial work process where activities avoid a fatality or catastrophic loss merely by chance; i.e., if someone says, "Boy, we're lucky we didn't kill somebody." Activities should report other "near miss" incidents by informal correspondence or by SAFETYGRAM (OPNAV 5102/4) shown in appendix 14-B. They may use either of these methods to describe any situation having mishap potential or as a vehicle to make recommendations to improve safety or occupational health. To provide anonymity, personnel may submit SAFETYGRAMs directly to COMNAVSAFECEN without normal chain of command routing. COMNAVSAFECEN requires the name of the activity, but not the name of the person originating the correspondence.

(10) Contractor Mishaps. The activity to which the injured is assigned shall report when contractor operations cause a mishap that results in death, injury or occupational illness to military or on-duty DoD civilian personnel. Activities need not record or report mishaps involving contractor personnel caused solely by contractor operations under this instruction. Report accidents involving WHE (including cranes and crane rigging gear) to the Navy Crane Center per section 1 of reference 14-6. Contractor mishaps may be reportable under the require-

ments of reference 14-7. Report, per this chapter, any mishap caused by contractor operations that result in reportable Navy material (property) damage. The Navy shore activity having custody of the property shall file the report.

(11) Special Situations. Report, per this chapter, any Navy operational mishap causing permanent total disability, permanent partial disability or death to any person not otherwise defined, on or off a Navy installation or aboard Navy service craft or small boats.

(12) Material (Property) Damage. Activities shall investigate and report any material (property) damage, including release of materials which are damaging to the environment, occurring ashore involving a repair, replacement, or cleanup cost of \$ 200,000 or more as a result of a mishap per this chapter. Malfunction or failure of component parts that are normally subject to wear and tear and have a fixed useful life less than the complete system or unit of equipment are not reportable. However, if the malfunction or failure of a component results in damage of \$ 200,000 or more to another component or the entire system, then the subsequent damage is reportable. Cost of repair or replacement includes cost of labor. Examples of reportable mishaps are those involving the improper operation or maintenance of equipment, improper materials handling, equipment casualties from electrical faults and hazardous material spills. Damage to Navy service craft or small boats assigned to a shore activity is also reportable. When a mishap involves both injury or death and material (property) damage, activities shall submit one consolidated report per appendix 14-C (SIR).

NOTE:

For military personnel, activities shall report the above categories for on-duty mishaps only. For civilian personnel, the above categories are for occupationally related mishaps.

b. Investigation of Class A and Certain Class B Mishaps. If any Class A mishap or mishap involving the inpatient hospitalization of three or more people occurs, the cognizant headquarters command shall initiate an investigation consistent with this chapter, and shall initiate the investigation within 48 hours of notification of the mishap. The activity where the mishap occurred (or activity employing the Navy personnel involved if off station) shall report this type of mishap by telephone within 8 hours to COMNAVSAFECEN and the cognizant headquarters command. COMNAVSAFECEN shall make notification to SECNAV and CNO. To comply with OSHA notification requirements, the activity shall also notify the local OSHA office within 8 hours of the mishap when civilian personnel are involved. The requirement for this special investigation does not apply to mishaps exclusively involving contractor personnel. The headquarters command may terminate any headquarters command investigation if the fatality is determined a natural cause, foul play, homicide or suicide. For on-duty military physical readiness test/physical test (PRT/PT) fatalities, headquarters command need not perform an investigation. The activity to which a person is assigned shall conduct the investigation and complete required reports. For explosives, diving, motor vehicle, and off-duty mishaps, COMNAVSAFECEN shall determine the need for this type of investigation and the team composition on a case-by-case basis (refer to reference 14-2 or 14-3). The following additional requirements apply:

(1) The cognizant headquarters command shall establish an investigative board to examine the cause(s) of the mishap and recommend corrective action. It shall assign a board leader from its headquarters or any command or activity other than the activity at which the

mishap occurred. The board leader shall be a senior line officer (O-5 and above) or OSH professional. An OSH professional shall be a board member. If a mishap occurs on a Navy vessel, a person with ship expertise shall be a team member. The remaining team composition should include appropriate technical experts. Technical specialists, including contractors providing assistance to mishap investigations, are not members of the team. The team shall not give them access to the team's deliberations and conclusions or mishap information not related to their area of expertise. The cognizant headquarters command is responsible for determining the need for and coordinating the assignment of a medical representative to the team. COMNAVSAFECEN will provide a representative to every headquarters safety investigative board. Activities shall ensure that all OSH members of the team have formal training in mishap investigation and reporting procedures per paragraph 1405. The cognizant headquarters command shall arrange funding of the investigation.

(2) The mishap investigation board shall complete an SIR using the format of appendix 14-C. The team leader shall draft, release, and mail the SIR, attaching all supporting documentation, to COMNAVSAFECEN (Code 49) via the activity, its chain of command and any other activity addressed in the findings or recommendations. If a mishap involves an activity the findings or recommendations do not address, then team leaders shall include the activity and its chain of command as "Copy To" addressees of the report. If the mishap occurred on board a ship, board leaders shall include the ship as an endorser. The mishap investigation board leader shall forward the original SIR to the first endorser within 45 days of the board convening, and mail an advance copy of the SIR to COMNAVSAFECEN (Code 49) and CNO (N45), when mailing the original to the first endorser. If the 45-day period cannot be met, the board leader shall request an extension from COMNAVSAFECEN in writing.

(3) The chain of command shall endorse the SIR within 30 days of receipt. If the 30 days cannot be met, the endorsing activity must request an extension from COMNAVSAFECEN, Code 49. Endorsements shall be by letter and shall state whether the endorser agrees or disagrees with each conclusion and recommendation and the rationale for disagreement. Endorsers shall forward a copy of their endorsement to COMNAVSAFECEN (Code 49) and CNO (N45). Disagreement is not a reason for delay. COMNAVSAFECEN will review the remarks of each endorser and request additional information when necessary.

(4) The activity shall maintain custody of all relevant board members' personal notes, original copies of all statements, photographs, negatives, and tape recordings (whether the SIR refers to them or not). The activity shall also maintain custody of physical evidence for 5 years, when practical. Endorsers and other authorized recipients shall retain a copy of the SIR and its endorsements for 2 years from the date of the mishap, at which time activities shall destroy them. COMNAVSAFECEN, as the custodian of mishap information and releasing authority, shall retain custody of the SIRs and their endorsements for 5 years at which time they may destroy them. Endorsers can review the factual evidence by requesting it from the custodian if needed to prepare their endorsement. Upon completion of the endorsement, endorsers shall return factual evidence to the custodian.

(5) COMNAVSAFECEN shall track SIR recommendations for compliance and provide status reports to CNO (N45) and the cognizant headquarters command.

(6) Except to the extent necessary to protect employees and public, the commander, commanding officer or officer in charge of the activity or location where the mishap occurred

shall ensure that employees do not disturb or remove evidence from the mishap scene. Do not release the scene until authorized by the Headquarters' Mishap Investigation Board leader who will coordinate with other investigating bodies (e.g., OSHA, JAG).

(7) Headquarters' Mishap Investigation Boards shall compile a 72-hour pre-mishap profile of any dead or injured person who had influence on the occurrence or outcome of any fatal mishap. The profile shall include:

- (a) Travel completed in the 72 hours immediately preceding the mishap
- (b) Type of work performed and work schedule (hours) for the 72 hours immediately preceding the mishap
- (c) Periods of rest and sleep for the 72 hours immediately preceding the mishap
- (d) Medications prescribed
- (e) Alcohol and other drugs (prescription, nonprescription, and illegal) taken during the 72 hours immediately preceding the mishap
- (f) General physical condition, including illnesses
- (g) Individual's mental, emotional, and physical state, including perceived stress and behavior changes, (based on comments or observations that the supervisor, next-of-kin, co-workers, and/or friends wish to make related to the individual's condition or pre-mishap activities)
- (h) Other comments the supervisor, next-of-kin, co-workers, and/or friends wish to make related to the individual's condition or pre-mishap activities
- (i) Other factors prior to the mishap that could have affected the mishap occurrence or its outcome
- (j) Non-judicial punishment (NJP)/UCMJ record (military only) or any other behavior infractions for the past 3 years.

(8) For cases involving fatalities, the Headquarters Mishap Investigation Board shall obtain a copy of the autopsy report if an autopsy was conducted. Since rules may vary locally, the board should contact the decedent affairs division of the closest naval medical treatment facility for assistance in obtaining the autopsy report from the local authority having jurisdiction.

c. Other DoD Component Personnel Assigned to the Navy. To avoid duplicate reporting of other DoD component personnel assigned to the Navy, the Navy organization of assignment shall report occupational injuries and illnesses rather than the parent DoD component command.

d. Navy Personnel Assigned to Other DoD Components. To avoid duplicate reporting of Navy military personnel regularly assigned to another DoD component, the organization of assignment shall report occupational injuries and illnesses rather than the parent Navy command.

e. Exceptions

(1) Material (Property) Damage. Activities need report neither injuries/deaths nor damage as a result of vandalism, riots, civil disorders, or felonious acts, such as arson, sabotage or terrorist acts per this chapter.

(2) Acts of God. Activities need report neither injuries/death nor material (property) damage as a result of acts of God under this chapter unless the activity did not adequately prepare for extreme weather conditions.

(3) Hostile Action. Activities shall report damage, injuries or death as a direct result of hostile enemy action per NWP-1-03-1 and reference 14-7.

(4) Nuclear Weapons. Activities shall report mishaps or incidents per reference 14-7 and JCS Publication 1-03.7 (NOTAL).

(5) Naval Nuclear Propulsion Plants. Activities shall report associated mishaps per OPNAVINST 3040.5B (NOTAL), reference 14-7, and NAVSEA Manuals 389-0152 (NOTAL) and 389-0153 (NOTAL). (Mishaps associated with the secondary side of the propulsion plant or non-nuclear components are reportable under this instruction or reference 14-3 as appropriate).

(6) Other Exceptions. The following occurrences are not reportable under this chapter but are reportable as appropriate in the case of military personnel under MILPERSMAN 4210100 and in the case of on-duty civilian deaths under CMMI 790 (NOTAL):

(a) Adverse medical reactions resulting directly from the use of medications

(b) Injuries personnel sustain prior to employment or preexisting disorders unless current employment specifically aggravates them

(c) Poisoning caused by specific organisms or toxins and confirmed by competent medical authority as Class 1 infectious or parasitic diseases (contact the local preventive medicine office for determination)

(d) Hospitalization for observation or administrative reasons not related to the immediate injury

(e) Attempted or consummated suicide or intentionally self-inflicted injuries

(f) Injuries or death caused by attempted or consummated homicide or other criminal act

(g) Injuries that result from:

1. Preexisting musculoskeletal disorders

2. Minimum stress and strain (simple, natural non-violent body positions or actions as in dressing, sleeping, coughing or sneezing). They are injuries unrelated to mishap-producing agents or environments normally separate from active participation in daily work or recreation.

(h) Death from natural causes that competent medical authority deems unrelated to the work environment

(i) Injuries or fatalities to persons in the act of escaping from or eluding military or civilian custody or arrest.

f. Reporting Procedures

(1) Responsibility. The commanding officer or officer in charge of shore activities, service craft and small boats shall require the investigation and reporting of all operational reportable injuries, fatalities, occupational illnesses or material (property) damage occurring within the command or involving personnel attached to the command. When a person is injured or killed at a location remote from his or her activity, the naval activity nearest the scene will notify the parent command. If a fatality occurs, the cognizant headquarters command of the activity where the person is employed shall initiate the investigation. For injuries, the two commands shall determine which one conducts the investigation. The final responsibility for submitting the report rests with the parent activity. Whichever command investigates the mishap, activities shall report it per this chapter.

(2) Submission of Reports

(a) General. Activities shall mark reports as unclassified and FOR OFFICIAL USE ONLY, unless the report includes classified information. See SECNAVINST 5720.42E for the proper marking of FOR OFFICIAL USE ONLY documents. Activities shall include classified information only when essential to the determination of causal factors, or otherwise necessary to understand the circumstances of the mishap.

(b) Safety Investigation Reports (SIR)

1. Board leaders shall use the SIR report format of appendix 14-C to report investigations required by paragraphs 1408a and 1408b. Since the same format is used for reporting personnel injury and material (property) damage, it may be necessary to omit some sections depending on the type of report activities submit. Activities shall mail SIRs for other than headquarters investigations to COMNAVSAFECEN, Code 41, within 30 calendar days of the mishap. If the mishap occurred on board a ship, the reporting activity shall forward a copy of the SIR to the ship. If the commanding officer of the ship finds errors in the report or wishes to comment on the report, he/she may send a message or letter to COMNAVSAFECEN, Code 41, with an information copy to the command submitting the report.

2. Reporting activities shall include their chain of command as information addressees on any Class B mishap report for which a headquarters command investigation is not conducted. Information addressees shall ensure that they use the information in the reports

for mishap prevention efforts per section 1402. Activities will handle requests for release of mishap information per section 1406.

(3) Priority Reports

(a) Reporting activities shall make a priority report via telephone within 8 hours to COMNAVSAFECEN and the cognizant headquarters command when any of the following occurs:

1. Any Class A mishap, or any occupational or Navy operational mishap which is fatal to one or more Navy personnel up to 6 months after the date of occurrence

2. Any occupational or Navy operational mishap involving Navy or non-Navy personnel which results in the inpatient hospitalization of three or more personnel.

(b) As a minimum, reporting activities shall furnish the date and time of mishap; name and social security number of injured personnel; location of mishap; description of evolution or operation; extent of damage or injury; and description of the mishap. COMNAVSAFECEN telephone numbers are: Defense Switched Network (DSN) 564-3520 or commercial (757) 444-3520.

(c) Due to the length of time it may take to complete the SIR, activities shall complete a priority message and forward it to CNO (N45), COMNAVSAFECEN (Code 49) and the chain of command within 48 hours of the mishap. The priority message shall confirm information in the initial telephone notification and provide as much additional information as possible. Completion of the telephone notification does not relieve the activity of this responsibility. Activities shall use the format of appendix 14-D for submission of the priority message.

(4) Additional Information. If additional information on a mishap that requires an SIR becomes available, or information originally submitted changes, activities shall submit a follow-up report referencing the local time and date of mishap and name of injured person stated on the original report. Activities should state only those items they add or change, mark the report "Modified" and forward it to COMNAVSAFECEN, Code 50. If necessary, COMNAVSAFECEN may also request additional information.

1409. Recording of Occupational Injuries and Illnesses of Navy Personnel

a. Recording Procedures (Civilian). All Navy commands, offices, and activities employing civilian personnel (Navy Federal civilians, Navy non-appropriated fund (NAF) civilians, and Navy foreign national civilians) and having a UIC per NAVCOMPT Manual Volume 2, Chapter 5 (NAVSO-P-1000-25) shall:

(1) Maintain a log of occupational injuries and illnesses. COMNAVSAFECEN will provide a computerized database and spreadsheet that may be used to maintain the log. Regardless of the method used to maintain the log, activities shall record the following data elements for every on-duty occupational injury and illness meeting the definitions in this chapter and involving Navy Federal civilian personnel, Navy NAF civilian personnel, and Navy foreign national civilian personnel. The log shall contain:

- (a) Civilian/military indicator
- (b) Event reference number
- (c) Case or file number
- (d) Unit identification code (UIC)
- (e) Activity name
- (f) Major command code
- (g) Last name, first name and middle initial
- (h) Department
- (i) Sex
- (j) Age
- (k) Job title
- (l) Rank/Rate/Grade
- (m) Date of mishap
- (n) Time of mishap
- (o) General location of mishap
- (p) Lost workday count
- (q) Injury type
- (r) OSHA Code
- (s) Body part
- (t) Mishap type
- (u) Object involved (Injury source)
- (v) Process control number (Job/Activity at Time of Mishap)
- (w) Chemical involved
- (x) Chemical comments
- (y) Formal training involved? If so, list CIN.

- (z) Case type (fatality, lost time, no lost time, first aid)
- (aa) Mishap class
- (bb) Date of death
- (cc) Short narrative
- (dd) Start date
- (ee) Sent date.

NOTE:

The computerized spreadsheet provided by COMNAVSAFECEN will provide codes for use with items f, k, l, o, q, r, s, t, u, v, z and aa.

Within 6 working days after receiving information or upon receipt of the appropriate Office of Workers' Compensation Programs (OWCP) compensation form on a recordable occupational injury or illness, activities shall enter appropriate information concerning such injury or illness on the log. Activities shall also record any mishap reported for Navy civilian employees who are covered by the Longshoreman and Harbor Workers' Compensation Act on the log. Activities shall record compensation claims resulting in permanent transfer or termination of employment as lost time cases and log and treat compensation claims they controvert or otherwise challenge as work-related until adjudication of the claim. Controversion adjudication resulting in upholding the Navy position may be lined out on the log, but not if the adjudication does not affirm the controversion.

NOTE:

Activities shall only record personnel who are on their employment rolls for the fiscal year of the log on that year's log. If the mishap occurred in the previous fiscal year, activities shall make an entry on that fiscal year's log.

Activities shall not log incidents that result in no medical treatment unless they receive an OWCP or equivalent form. When they receive a report form for such a case as well as a case in which an employee submits a notice of injury or illness solely to document an incident or exposure and, which are retained at the activity, they will log it as a "no lost time" case.

(2) In addition to the log of occupational injuries and illnesses, each activity shall maintain a supplementary record for each occupational injury, illness or fatality they enter on the log. They shall complete the record within 6 working days after the receipt of information that an occupational injury or illness has occurred. Activities may use the applicable compensation form as the supplementary record. In those cases where Federal Employee's Compensation Act (FECA) or Longshoreman and Harbor Workers' Compensation Act does not cover the injured employee, the activity's local mishap report will suffice as the supplementary record. Activities can use appendix 14-E, Department of the Navy Report of Traumatic Injury, as their activity's

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local mishap report. It provides the information activities need to maintain the log of occupational injuries and illnesses paragraph 1409a(1) discusses. If an occupational injury or illness meets the individual mishap reporting requirements of this chapter, activities shall include a copy of the mishap report submitted to COMNAVSAFECEN as part of the supplementary record. Activities shall retain logs and supplementary records for 5 years following the end of the fiscal year to which they relate.

NOTE:

Activity OSH managers shall coordinate with the human resources office (HRO), or equivalent for NAF and Navy foreign national civilians, to ensure they receive a copy of applicable compensation forms (OWCP, Longshoreman and Harbor Workers' Compensation Act, etc.) filed with the HRO or equivalent office. Where activities use compensation forms as supplementary records, they shall maintain copies in the OSH office.

(3) Activities with Navy civilian personnel shall complete and post a copy of appendix 14-F, "Annual Report of Navy Civilian Occupational Injuries and Illnesses," within 45 calendar days following the close of the fiscal year. The report is a summary of the information recorded on the Log of Navy Injuries and Occupational Illnesses for the fiscal year. The report shall always indicate population and total hours worked (exposure data) even though assigned personnel may have experienced no occupational injury or illness during the reporting period. Post the report in conspicuous places throughout the command no later than 45 days after the close of the fiscal year. It shall remain there for at least 30 days. **Do not** submit this report to COMNAVSAFECEN.

NOTE:

When completing the annual report for a UIC, activities shall combine Navy civilian personnel (appropriated fund, NAF, and foreign nationals) in the one report for the UIC. **Do not** prepare separate reports for different categories of Navy civilian personnel.

b. Recording Procedures (Military). Navy shore activities with military personnel attached shall maintain a log per paragraph 1409a(1) for on-duty military personnel mishaps.

c. Each activity with a UIC shall submit a copy of its respective civilian and military Logs of Occupational Injury and Illness to COMNAVSAFECEN (Code 41) semi-annually. Activities shall submit the logs for the first 6 months of the current fiscal year by 15 April. Submit the log for the entire fiscal year by 15 October. The second submission covers the entire fiscal year to allow submission of the most current data available for the year. Activities can submit forms electronically to COMNAVSAFECEN as an e-mail attachment sent to shore@safecen.navy.mil or via disk. Hard copies are acceptable for activities that do not have electronic capability. The mailing address is: Commander, Naval Safety Center, ATTN: Code 41, 375 A Street, Norfolk, VA 23511-4399. COMNAVSAFECEN does not require negative reports.

1410. Injury/Illness Treatment (Civilian Employees Only)

a. Reporting Procedures. Employees shall report immediately to their supervisor any occupational injury or illness. The supervisor shall furnish OPNAV 5100/9, Dispensary Permit (appendix 14-G) or equivalent to civilian employees who need treatment. Activities shall not permit employees to visit the Navy medical treatment facility (MTF) without having obtained the form, except where necessary to avoid delay in treatment to the detriment of an employee. In this case, activities may complete the form after the patient has been removed to the MTF. Activities shall record any injury or occupational illness at work at the dispensary or medical department of the activity.

NOTE:

The Navy uses the terms "dispensary" and "medical treatment facility" generically to denote the site and provider of medical treatment at Navy activities. Individual activities may use different terms.

b. Injury Report Control. The OSH office may use appendix 14-G as one means of control to ensure the prompt receipt of information they need to investigate mishaps and to complete appropriate mishap reports for civilian employees. The OSH office may use other tracking systems if they allow activity OSH offices to track MTF visits. Regardless of the tracking system used, all injured civilian personnel shall first report to the MTF per paragraph 1410c(6).

c. Preparation Procedure. Personnel shall observe the following instructions regarding the preparation and disposition of Dispensary Permits, appendix 14-G:

- (1) The supervisor shall complete the upper half of the Dispensary Permit in duplicate.
- (2) The injured employee shall take both copies of the form to the MTF.
- (3) The "Occupational-No" box is checked for personal illness cases only. If this block is checked, give further details under "Reason for Referral-Other".
- (4) Use of case number is optional within the activity.
- (5) The MTF shall make every effort to determine whether or not an injury or physical disability is occupational before checking the "Questionable" block.
- (6) All personnel, except where necessary to avoid delay in treatment to the detriment of an employee, shall first report to the MTF for administrative purposes. The employee may then choose treatment at the MTF, a private hospital or by a private physician. Those Navy civilians covered by FECA who elect treatment by a qualified local physician or hospital shall meet this administrative requirement.

1411. Commanding Officer Review

Commanders, commanding officers and officers in charge, or their respective deputies, chiefs of staff, or executive officers, shall review lost time mishaps. The activity head or his or her designee with the OSH manager shall decide which mishaps to review. At a minimum, activities shall review any mishap that requires submission of an SIR per paragraph 1408. The specific review mechanism is left to the command's discretion and can take many forms. This review will include the cognizant first-line supervisor and/or next level of management, and the injured employee if needed for amplifying information. The review shall involve safety, medical, compensation, and other management personnel, as appropriate. The object of the review is to determine compliance with and adequacy of established NAVOSH standards and procedures, identify the underlying cause(s) of the mishap and take corrective action to prevent recurrence

1412. Shore Major Mishap Review Board

The purpose of a Shore Major Mishap Review Board is for periodically reviewing Class A and select Class B mishaps, and taking actions to implement mishap investigation recommendations. This board shall meet at least annually. CNO (N45) shall chair this board which shall include representatives of COMNAVSAFECEN (Code 40), NAVINSGEN/NOIU, headquarters commands experiencing mishaps under review and others the chair selects.

1413. Mishap Analyses

Activities shall conduct detailed analyses of their mishap experiences and develop annual fiscal year (FY) mishap reduction goals. They shall include these goals in command goals and specific strategies, measurement standards and develop actions for goal attainment. (See chapter 5, paragraph 0505 for further guidance.)

1414. Records Disposition

- a. The records and reports this chapter requires will be retained for 5 years following the end of the fiscal year to which they relate.
- b. Activities shall destroy general correspondence and records they accumulate in connection with the routine administration and operation of mishap investigation and reporting after 2 years.
- c. Records shall not be destroyed if they address corrective actions that are not yet complete.

Chapter 14

References

- 14-1. DOD Instruction 6055.7 of 10 Apr 89, Mishap Investigation, Reporting and Recordkeeping, latest edition (NOTAL)
- 14-2. OPNAVINST 5102.1C of 3 Mar 89, Mishap Investigation and Reporting
- 14-3. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)
- 14-4. OPNAVINST 3750.6Q of 28 Aug 89, Naval Aviation Safety Program (NOTAL)
- 14-5. OPNAVINST 3120.32C of 11 Apr 94, Standard Organization and Regulations of the U.S. Navy (NOTAL)
- 14-6. NAVFAC P-307 Management of Weight Handling Equipment, latest edition

OPNAVINST 5100.23F
15 July 2002

14-7 OPNAVINST 3100.6G of 1 Jun 95, Special Incident Reporting (OPREP 3, Navy Blue and Unit SITREP) Procedures (NOTAL)

Appendix 14-A

**ADVICE TO WITNESS
(PROMISE OF CONFIDENTIALITY)**

OPNAV 5102-11

THIS IS PART OF A NAVY SAFETY INVESTIGATION LIMITED DISTRIBUTION AND SPECIAL HANDLING REQUIRED BY OPNAVINST 5100.23E THIS STATEMENT IS PRIVILEGED AND IS EXEMPT FROM DISCLOSURE	
PLEASE READ THIS STATEMENT CAREFULLY CERTIFY THAT YOU UNDERSTAND IT BY YOUR SIGNATURE AT THE BOTTOM	
<p>I understand that:</p> <ul style="list-style-type: none">a. I have been requested to voluntarily provide information to a Mishap Investigation Board conducting an investigation of a defined Navy shore mishap.b. I AM NOT being requested to provide statement under oath or affirmation.c. Disclosure of personal information by me is voluntary, and that failure to provide such information will have no direct effect on me.d. The purpose of the information provided by me is to determine the cause of a mishap and/or the damage and/or injury occurring in connection with that mishap.e. All information provided by me to the Mishap Investigation Board will be used ONLY for safety purposes.f. The information provided by me shall NOT be used:<ul style="list-style-type: none">1) In any determination affecting my interests.2) As evidence to obtain evidence in determining misconduct or line of duty status of killed or injured personnel.3) As evidence to determine my responsibility or that of other personnel from the standpoint of discipline.4) As evidence to assert affirmative claims on behalf of the government.5) As evidence to determine the liability of the government for property damage caused by the mishap.6) As evidence before administrative bodies, such as Officer/Enlisted Separation Boards, Judge Advocate General Manual investigations/inquiries.7) In any other punitive or administrative action taken by the Department of the Navy.8) In any other investigation or report of the mishap about which I have been asked to provide information.g. <p>Witness signature: _____ Date: _____ Initials: _____</p>	
1. Summation of witness interview by investigator (Continue on reverse and/or attach separate sheet(s) as necessary)	
2. PRINTED NAME OF INVESTIGATOR (First, Middle, Last)	3. DATE
4. SIGNATURE	5. TELEPHONE NUMBER
6. INVESTIGATOR'S ADDRESS (WHERE YOU MAY BE LOCATED)	

OPNAV 5102/11 (REV 6-00)

Appendix 14-A

Enclosure (1)

SAFETY INVESTIGATION REPORT (SIR) ENCLOSURE ADVICE TO WITNESS

THIS IS PART OF A SAFETY INVESTIGATION LIMITED DISTRIBUTION AND SPECIAL HANDLING REQUIRED BY OPNAVINST 5100.23E THIS STATEMENT IS NOT PRIVILEGED AND MAY BE DISCLOSED	
PLEASE READ THIS STATEMENT CAREFULLY CERTIFY THAT YOU UNDERSTAND IT BY YOUR SIGNATURE AT THE BOTTOM	
<p>I understand that:</p> <ul style="list-style-type: none">a. I have been requested to voluntarily provide information to a Mishap Investigation Board conducting an investigation of a defined Navy shore mishap.b. I AM NOT being requested to provide statement under oath or affirmation.c. Disclosure of personal information by me is voluntary, and that failure to provide such information will have no direct effect on me.d. The purpose of the information provided by me is to determine the cause of a mishap and/or the damage and/or injury occurring in connection with that mishap.e. All information provided by me to the Mishap Investigation Board will be used ONLY for safety purposes. It is further understood, however, that the information provided by me or contained in this report may be released in response to a Freedom of Information Act (FOIA) request.f. Although releasable, the information provided by me shall NOT be used by the Government:<ul style="list-style-type: none">(1) In any determination affecting my interests.(2) As evidence to obtain evidence in determining misconduct or line of duty status of killed or injured personnel.(3) As evidence to determine my responsibility or that of other personnel from the standpoint of discipline.(4) As evidence to assert affirmative claims on behalf of the government.(5) As evidence to determine the liability of the government for property damage caused by the mishap.(6) As evidence before administrative bodies, such as Officer/Enlisted Separation Boards, Judge Advocate General Manual investigations/inquiries.(7) In any other punitive or administrative action taken by the Department of the Navy. In any other investigation or report of the mishap about which I have been asked to provide information(8) My signature acknowledges that I do not need a full Promise of Confidentiality as a condition of my willingness to provide testimony to the Board and I understand that statements given without a Promise of Confidentiality may be released. (If the witness has any reservations about their statement being released to anyone outside the board itself, entitled persons in the safety endorsement process, or the public under FOIA, a Promise of Confidentiality should be offered to ensure forthright, candid testimony.)	
<p>Witness signature: _____ Date: _____ Initials: _____</p>	
1. SUMMATION of Witness interview by investigator (Continue on reverse and/or attach separate sheet(s) as necessary)	
2. PRINTED NAME OF INVESTIGATOR (First, Middle, Last)	3. DATE
4. SIGNATURE	5. TELEPHONE NUMBER
6. INVESTIGATORS ADDRESS WHERE YOU MAY BE LOCATED	

OPNAV 5102/10 (REV 6-00)

Appendix 14-B

SAFETYGRAM

OPNAV 5100-29

[illegible]

Instructions: (1) Send original to Commander NAVSAFECEN, and copies as appropriate. Retain file copy. (2) May use pencil longhand; attach additional sheets as necessary. (3) If classified information included, follow appropriate marking and mailing.

OPNAV 5102/4 (07/94) S/N 0107-LF-015-8400

Appendix 14-B

Enclosure (1)

OPNAVINST 5100.23F
15 July 2002

DEPARTMENT OF THE NAVY
SAFETYGRAM

OFFICIAL BUSINESS FIRST CLASS
PENALTY FOR PRIVATE USE, \$ 300

COMMANDER NAVAL SAFETY CENTER
375 A STREET
NORFOLK, VA 23511-4399

Appendix 14-B

Enclosure (1)

14-B-2

Appendix 14-C
Format for Safety Investigation Report (SIR)

General. The format and content shown below are to be used for reporting personnel injuries, death, or material (property) damage mishaps required by paragraph 1408a and 1408b. WHEN REQUESTED DATA DOES NOT APPLY OR IS NOT RELEVANT TO THE ANALYSIS OF THE Mishap, INSERT THE WORDS "NOT APPLICABLE" OR "NA."

From: **Activity Name (reports submitted per 1408a)**
Board Leader (reports submitted per 1408b)

To: Commander, Naval Safety Center (Code 41)

USE VIA LINE FOR REPORTS SUBMITTED PER 1408b

Via: (1) Command Experiencing Mishap
(2) Operational Chain of Command
(3) Other Endorsers

SUBJ: SAFETY INVESTIGATION REPORT (SIR)

Ref: (a)

Encl: (1)

FOR OFFICIAL USE ONLY. THIS IS A GENERAL USE SHORE SAFETY INVESTIGATION REPORT (SIR) TO BE USED FOR SAFETY PURPOSES AS DEFINED IN OPNAVINST 5100.23E.

1. For headquarters investigations, state if Class A or B mishap; the name and UIC of the activity where mishap occurred; local date, time of mishap and result of mishap.
2. Mishap Investigator/Investigation Board: State name, job title, activity, and telephone number of each member, including the board Leader.
3. Sequence of Events (include chain of events leading up to, through, and subsequent to the mishap). State the location where the mishap occurred, the evolution at the time of the mishap and weather conditions if applicable.
4. Injury or Material (Property) Damage:
 - a. Injuries - for each person injured provide the following:
 - (1) Name:
 - (2) Age/Sex/SSN:

(3) UIC of Duty Station:

(4) Employment Status: (USN, USNR, NROTC, USMC, USAF, US Army, Navy Federal Civilian, Navy Non-Appropriated Fund Civilian, Navy Foreign National Civilian, Navy Federal Marine Civilian, Military Dependent, Non-DOD, Other (Specify))

(5) Civilian - Series, job title, and grade:

(6) Military - Rank and designator or rate and NEC:

(7) Duty status - (On or off duty)

(8) Did injury result from formal Navy training? If so, state course identification number (cin):

(9) Was the job/activity related to the person's rating or job position:

(10) State the specific job/activity the person was performing at the time of the mishap:

(11) Extent of injury or illness: fatality, permanent total disability, permanent partial disability, temporary disability, missing, or no disability likely:

(12) Medical diagnosis - state part of body and nature of the injury or illness:

(13) Estimation of lost time:

(a) Total of lost workdays away from job (actual number of lost workdays including workdays hospitalized):

(b) Total of days hospitalized (actual number of days hospitalized including weekends):

(14) 72 hour profile (complete only if mishap involves a fatality):

(a) Travel completed in the 72 hours immediately preceding the mishap.

(b) Type of work performed and work schedule (hours) for the 72 hours immediately preceding the mishap,

(c) Periods of rest and sleep for the 72 hours immediately preceding the mishap.

(d) Medications prescribed.

(e) Alcohol and other drugs (prescription, nonprescription, and illegal) taken during the 72 hours immediately preceding the mishap.

(f) General physical condition, including illnesses.

(g) Individual's mental, emotional, and physical state including perceived stress and behavior changes (based on supervisor, next-of-kin (if available), co-workers, and friends).

(h) Other comments the supervisor, next-of-kin, co-workers, and friends wish to make related to the individual's condition or pre-mishap activities.

(i) Other factors prior to the mishap that could have affected the mishap occurrence or its outcome.

(j) Non-judicial punishment (NJP)/Uniform Code of Military Justice (UCMJ) record (military only) or any other behavior infractions for the past three years.

b. Material (Property) Damage - provide the following information for property or equipment damaged or destroyed:

(1) Property or equipment (EIC, TEC, NSN -- if none of these are available, state manufacturer, specific type of property or equipment, and model and serial numbers, as applicable):

(2) Describe damage:

(3) UIC of activity owning material:

(4) Estimated cost to repair or replace DoD property (provide the total cost including man-hours plus cost of material or equipment):

(5) Estimate cost to repair or replace Non-DOD property:

(6) Number of operating days lost (also applies to service craft and small boats):

5. Discussion and Findings (Address the following areas, as applicable):

a. Adequacy and use of approved procedures:

b. Qualifications and training of people involved:

c. Effectiveness of supervision:

d. Effectiveness of Quality Assurance/Inspection Program:

e. Human error:

f. Material deficiencies or shortcomings:

g. Violation of OSHA standards or NAVOSH Program requirements and effects:

6. Conclusions

- a. State probable cause(s) of the mishap, injury, and damage with a short rationale:
- b. Other causes considered but rejected with a short rationale:

7. Recommendations (State recommendations for changes in procedures, equipment, or training to prevent recurrence and the boards recommendations to prevent recurrence):

8. Other comments, as applicable.

Signature of Board Chairman _____

NOTE:

Copy to: (If mishap involves an activity the findings or recommendations do not address, include the activity and its chain of command as "copy to" addressees.)

Appendix 14-D

**Sample Priority Message for Interim Reporting
of Mishaps Requiring a Headquarters Command Investigation**

1. General. The format and content shown below are to be used for initial reporting of personnel injuries/deaths or material (property) damage mishaps requiring a headquarters command investigation. Submit as much of the information as is available.

2. Content and Format:

(Precedence - Priority)

FROM: REPORTING ACTIVITY

TO: COMNAVSAFECEN NORFOLK VA//02/40/50/70/054//
CNO WASHINGTON DC//N45//

INFO: CHAIN OF COMMAND
AS DESIRED

UNCLAS//N05100//FOUO (Normally UNCLAS unless classified information must be included.)

SUBJ: CLASS A OR B (STATE WHICH) MISHAP

MSGID/GENADMIN/MSG ORIG/SER NO/MONTH//

A. (Reference telephone call to COMNAVSAFECEN of initial notification)

FORMAT IN ACCORDANCE WITH GENADMIN PROCEDURES.

NARR/THIS IS A GENERAL USE SHORE SAFETY INVESTIGATION REPORT TO BE
USED ONLY FOR SAFETY PURPOSES PER OPNAVINST 5100.23E

RMKS/GENERAL MISHAP INFORMATION:

1. UIC OF INJURED PERSON'S COMMAND OR REPORTING ACTIVITY IF PROPERTY DAMAGE
2. TYPE OF MISHAP (Flooding, fire, injury/death, equipment casualty, etc)
3. LOCAL TIME AND DATE OF MISHAP
4. LOCATION WHERE MISHAP OCCURRED (If at duty station, give workcenter or description, e.g., torpedo room, main deck frame, base/station facility. If other, so indicate, e.g., ball field, etc. Indicate if MWR facility.)

5. EVOLUTION/JOB BEING PERFORMED AT TIME OF MISHAP, (refit, ISE, maintenance, UNREP, material handling production, etc.) If at training command, insert course identification number (CIN) only - do not provide evolution in those cases.

6. POINT OF CONTACT AND COMPLETE TELEPHONE NUMBER

MATERIAL (PROPERTY) DAMAGE:

1. EQUIPMENT DAMAGED OR DESTROYED BY THE MISHAP (Include EIC, TEC, or NSN, if applicable; describe damage)

2. ESTIMATED COST TO REPAIR OR REPLACE DOD PROPERTY (Provide a total cost including labor plus cost of material and equipment.)

3. ESTIMATED COST OF NON-DOD PROPERTY DAMAGE

4. NUMBER OF REPORTING ACTIVITY OPERATING DAYS LOST

REPORTABLE INJURIES:

1. NAME/SSN/AGE/SEX (If more than one person involved, information in this section must be explicit as to which individual is being described. Repeat items 1 through 7 for each individual.)

2. RANK/DESIGNATOR/RATE/GRADE, JOB AND EMPLOYMENT STATUS (For employment status, specify USN, USNR, Navy Federal Civilian, Navy Non-Appropriated Fund Civilian, Navy Foreign National Civilian, etc.)

3. DUTY STATUS (on or off duty)

4. SPECIFIC JOB OR ACTIVITY INDIVIDUAL ENGAGED IN AT TIME OF MISHAP (PMS, PFT, training, watch-standing, woodworking, material handling, etc.)

5. NUMBER OF MONTHS EXPERIENCE AT THE JOB OR ACTIVITY (The experience the person possessed for the activity engaged in, e.g., swimming mishap indicate swimming qualification and applicable training course.)

6. MEDICAL DIAGNOSIS (Include parts of body and type of injury or illness).

7. FATALITY OR EXTENT OF INJURIES OR OCCUPATIONAL ILLNESSES (Specify fatality, missing, permanent total disability, permanent partial disability, temporary partial disability, or no disability likely)

NARRATIVE: State as much amplifying information available. Chain of events leading up to, through, and subsequent to mishap (Elaborate with remarks so that who, where, how, and why of the mishap are known.)

Appendix 14-E

FOR OFFICIAL USE ONLY
Department of the Navy
Report of Traumatic Injury

For use by military personnel, non-appropriated fund civilian personnel and foreign nationals only.

Employee Data			
1. Name of employee (Last, First, Middle)			2. Social Security No.
3. Date of birth Mo. Day Yr.	4. Sex Male Female	5. Home Telephone ()	6. Rank/Grade on date of injury:
7. Employee's home mailing address(include city, state, and zip code)			8. Dependents Wife, Husband Children under 18 years Other
Description of Injury			
9. Place where injury occurred (e.g. 2nd floor, Main Post Office Bldg., 12th & Pine)			
10. Date of Injury Mo. Day Yr.	Time: a.m. p.m.	10. Date of notice Mo. Day Yr.	12. Employee's Occupation
13. Cause of Injury (Describe what happened and why)			
14. Nature of Injury(identify both the injury and part of body, e.g., fracture of left leg)		a. Type code	b. Source code

Appendix 14-E

Enclosure(1)

FOR OFFICIAL USE ONLY

Employee Signature

15. I certify that the injury described above was sustained in performance of duty as an employee of the United States Navy and that it was not caused by my willful misconduct, intent to injure myself or another person, nor by my intoxication.

Signature of employee or person acting on his/her behalf

End of Employee Report

Witness

Note: Witness Statements, when available, should be attached to this report for use by the mishap investigator during the investigation of this injury.

16. Witnesses to the injury.(If additional witnesses are available who may provide more information, attach a separate sheet of paper with the below information)

Name of Witness phone Number	City	State	Zip Code	Daytime Tele- ()
---------------------------------	------	-------	----------	-------------------------

Name of Witness phone Number	City	State	Zip Code	Daytime Tele- ()
---------------------------------	------	-------	----------	-------------------------

Name of Witness phone Number	City	State	Zip Code	Daytime Tele- ()
---------------------------------	------	-------	----------	-------------------------

Supervisor's Report

17. UIC of activity reporting mishap:

18. UIC of activity where mishap occurred:

19. Employee's duty station (Street address and zip code)

20. Date of Injury Mo. Day Yr.	21. Days of Restricted Work beyond date of injury.	22. Number of lost work days.
-----------------------------------	--	-------------------------------

23. Was the employee injured in performance of duty? Yes No (If no, explain)	24. Do medical reports show employee is disabled for work? Yes No
---	--

FOR OFFICIAL USE ONLY

FOR OFFICIAL USE ONLY

25. Does your knowledge of the facts about this injury agree with statements of the employee and/or witnesses? Yes No (If no, explain)

Signature of Supervisor and Filing Instructions.

26. I certify that the information given above and that furnished by the employee is true to the best of my knowledge with the following exception:

Name of Supervisor (Type or print)

Signature of Supervisor

Date

Supervisor's Title

Office Phone

27. Filing instructions: No lost time and no medical expenses incurred. Provide to activity Safety Office for recordkeeping.
No lost time, medical expense incurred or expected. Provide to activity Safety Office for recordkeeping
Lost Time. Provide to activity Safety Office for recordkeeping

Appendix 14-F

ANNUAL REPORT OF NAVY CIVILIAN OCCUPATIONAL INJURIES AND ILLNESSES

A. UIC _____ C. _____
(List all UICs included on this report with ISIC first) (Complete mailing address of activity)

D. _____
(City, State, Zip)

B. Reporting Period E. _____
Month Day Year (Immediate Superior in Command)
(FY Ending)

F. _____
(Date Prepared)

CODE	INJURY AND ILLNESS CATEGORY	TOTAL CASES (1)	DEATHS (2)	LOST TIME CASES (3)	NO LOST TIME CASES (4)	FIRST AID CASES (5)
10	Occupational Injuries					
	Occupational Illnesses					
21	Occupational skin diseases or disorders					
22	Dust diseases of the lungs (pneumoconioses)					
23	Respiratory conditions due to toxic agents					
24	Poisoning (systemic effects of toxic materials)					
25	Disorders due to physical agents (other than toxic materials)					
26	Disorders due to repeated trauma or stress					
29	All other occupational illnesses					
	TOTAL CIVILIAN OCCUPATIONAL INJURIES AND ILLNESS					
30	Total occupational illnesses (21-29)					
31	Total occupational injuries and illnesses (10 + 30)					
40	Total hours worked by personnel (This reporting period)					
50	Average number of personnel (This reporting period)					

OPNAV 5102/8 (10/94)

PERSON PREPARING REPORT _____ LOCAL PHONE _____

Appendix 14-F

Enclosure (1)

Appendix 14-G
Dispensary Permit

CASE NUMBER

PRIVACY ACT STATEMENT BELOW

SUPERVISOR'S REPORT		TO DISPENSARY (Location)		DATE OF REPORT	
EMPLOYEE'S NAME		TIME & DATE OF INJURY		TIME LEFT JOB	TIME RETURNED
SOCIAL SECURITY NO.	GRADE, RATE, JOB TITLE			OCCUPATIONAL <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> QUESTIONABLE	
REASON FOR REFERRAL <input type="checkbox"/> INJURY <input type="checkbox"/> ILLNESS <input type="checkbox"/> EMPLOYEE'S REQUEST <input type="checkbox"/> OTHER (Specify)					
REMARKS					
SUPERVISOR'S SIGNATURE		SHOP/OFFICE		TELEPHONE NUMBER	

MEDICAL OFFICER'S REPORT		TIME REPORTED	TIME RELEASED
OCCUPATIONAL <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> QUESTIONABLE		DEGREE OF INJURY <input type="checkbox"/> FIRST AID <input type="checkbox"/> MEDICAL TREATMENT <input type="checkbox"/> OTHER (Explain)	
DISPOSITION OF EMPLOYEE <input type="checkbox"/> RETURN TO PERM. JOB _____ <input type="checkbox"/> TEMP. TRANSFER TO ANOTHER JOB <input type="checkbox"/> TERMINATION OF EMPLOYMENT <input type="checkbox"/> RESTRICT ACTIVITY UNTIL _____ <input type="checkbox"/> PERM. TRANSFER TO ANOTHER JOB <input type="checkbox"/> SENT HOME BY DISPENSARY <input type="checkbox"/> REFERRED TO PRIVATE PHYSICIAN/HOSPITAL <input type="checkbox"/> OTHER (Explain)			
REMARKS/DIAGNOSIS			
MEDICAL OFFICER'S SIGNATURE		INITIAL TREATMENT DETERMINATION <input type="checkbox"/> DISCHARGED, TREATMENT COMPLETED <input type="checkbox"/> RE-TREATMENT REQUIRED	

OPNAV 5100/9 (Rev. OCT 1992)

Authority: 5 U.S.C. 301, Departmental Regulations and E.O. 9397

Principal Purpose: To ensure prompt investigation of occupational injuries, and to initiate any necessary immediate corrective action.

Routine Use: Routinely used by the activity Occupational Safety and Health Office to perform official duties in the investigation of mishaps which may have caused occupational injury or illness.

Disclosure: Voluntary. Treatment will be provided without regard to employee's willingness to divulge all or part of the requested information.
OPNAV 5100/9 (10/92)

Appendix 14-G

Enclosure (1)

CHAPTER 15

RESPIRATORY PROTECTION

1501. Discussion

a. This chapter establishes requirements and responsibilities for an ashore respiratory protection program. Reference 15-1 covers respiratory protection for forces afloat.

b. Many occupational activities expose personnel to air contaminants that can be dangerous, if inhaled. The best means of protecting personnel from exposure to potentially hazardous materials is to eliminate the air contaminant at its source. When elimination of the air contaminant is not possible, the preferred protection method is engineering controls. Activity work center personnel shall use respirators where neither elimination of the air contaminant nor use of engineering controls is wholly effective.

1502. Applicability

a. The provisions of this chapter shall apply where employees are required to wear respiratory protection equipment due to the nature of their work or job.

b. The provisions of this chapter do not apply to:

(1) Contractors. They are responsible for providing their own respiratory protection programs and respiratory protective equipment.

(2) Personnel wearing respiratory protection for the sole purpose of protection against airborne radioactive contamination associated with the Naval Nuclear Propulsion Program, which is governed by reference 15-2.

1503. General Requirements

a. Whenever respiratory protection is required, activities shall establish and maintain a respiratory protection program per this chapter and reference 15-3. The commanding officer or officer in charge shall appoint a trained respiratory protection program manager (RPPM) who shall implement program requirements. Section 1512 contains minimum RPPM training requirements.

b. Activities shall provide appropriate equipment to personnel, such as employees, inspectors and visitors who must enter an area where the use of respiratory protection is required. These personnel shall use this equipment regardless of stay time.

c. Activities shall fit test, issue and train personnel to wear respirators and ensure personnel are medically qualified. The Navy does not require medical approval for visitors and personnel not assigned to the work areas where activities provide escape-only respirators for potential emergencies. However, they shall be briefed in the use of the escape respirator and shall be escorted at all times by activity personnel who are trained in the use of the respirator and who can guide and assist them in emergencies.

d. The RPPM shall maintain a listing of employees that require respiratory protection and shall authorize those employees to wear respiratory protective equipment. The activity shall provide appropriate respiratory protection equipment to these individuals.

e. Per reference 15-3,

"The employer shall not permit respirators with tight-fitting facepieces to be worn by employees who have:

(A) Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or

(B) Any condition that interferes with the face-to-facepiece seal or valve function.

(C) If any employee wears corrective glasses or goggles or other personal protective equipment, the employer shall ensure that such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user."

f. Activity programs shall only permit the issuance of respiratory protection for:

(1) Workers in areas known to have contaminant levels requiring the use of respiratory protection or in which contaminant levels requiring the use of respiratory protection may create a hazard without warning (e.g., emergency purposes such as hazardous material spill responses)

(2) Workers performing operations documented as an inhalation hazard and workers in the immediate vicinity where operations generate hazardous levels of contaminants

(3) Workers in suspect areas or performing operations suspected of being health hazardous but for which adequate sampling data does not exist

(4) Workers performing operations for which the Occupational Safety and Health Administration (OSHA) requires respiratory protection

(5) Workers performing operations where OSHA permits the employee to choose to use a respirator (i.e., lead)

(6) Any other worker for whom the use of respiratory protection is deemed appropriate by the RPPM - for humanitarian or morale use- (voluntary respirator use).

g. Voluntary Respirator Use. When respirators are not required, voluntary use of respiratory protection is allowed if the respirators are issued and controlled by the RPPM and the following criteria are met. Voluntary respirator use is defined/ described in detail in the glossary (see Voluntary Respirator Use).

(A) NIOSH approved filtering facepieces (dust masks) may be issued without medical screening and fit testing. Annually provide respirator users with the information contained in Appendix D of reference 15-3 and the limitations stated on the respirator approval label. Personnel may not supply their own respirators.

(B) For any other voluntary respirator use, elastomeric facepiece respirators will be issued and all elements of the respiratory protection program must be met. NIOSH or NIOSH/MSHA approved respirators must be selected appropriately for the perceived hazard.

(C) Issuance of voluntary use respirators shall not be used as a justification for avoiding further evaluation of health hazards.

1504. Types of Respirators

The three basic types of respirators are air purifying, supplied-air, and self-contained. Personnel sometimes group supplied-air respirators and self-contained breathing apparatuses together as atmospheric supplying respirators. This instruction lists them separately for clarity. Detailed descriptions of respirators are found in chapter 9 of reference 15-4.

a. Air-Purifying Respirator. These respirators remove air contaminants by filtering, absorbing, adsorbing or chemically reacting with the contaminants as they pass through the respirator canister or cartridge. Personnel shall only use this respirator where adequate oxygen (19.5 to 23.5 percent by volume) is available. This category also includes battery-powered air purifying respirators.

NOTE:

Authorization for military gas masks, such as the MCU-2A/P, is only for chemical biological and radiological (CBR) warfare, CBR warfare training, and nuclear accidents when used according to DoD 3150.8M of 1 December 1999 (NOTAL).

b. Supplied-Air Respirators. These respirators provide breathing air independent of the environment. Personnel shall use these respirators in place of chemical cartridge, air purifying respirators when:

- (1) A cartridge change out schedule has not been established and implemented;
- (2) There are no appropriate end-of-service life indicator respirators; or
- (3) The contaminant is of such high concentration or toxicity that an air-purifying respirator is inadequate.

c. Self-Contained Breathing Apparatus (SCBA). This type of respirator allows the user complete independence from a fixed source of air and offers the greatest degree of protection but is also the most complex. Training and practice in its use and maintenance is essential.

The Navy oxygen breathing apparatus (OBA) is a uniquely designed SCBA respirator. Its only authorized use is for damage control, firefighting operations aboard ships, and during firefighting training ashore.

Shipboard personnel undergoing shore firefighting training are not required to obtain medical qualification or respirator fit testing for SCBAs, including the OBA, prior to reporting for training.

Wearing SCBAs during shipboard firefighting or other emergencies, including ashore training for these emergencies, is military-unique. Therefore, fit-testing and medical surveillance are not required prior to wearing SCBAs for these scenarios.

1505. Respirator Cartridges and Gas Mask Canisters

Navy policy no longer permits reliance on odor thresholds and other warning properties as the sole basis for determining that an air-purifying respirator will afford adequate protection against exposure to gas and vapor contaminants.

a. Activities shall:

(1) Implement a change schedule for chemical canisters/cartridges based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. Activities must describe this data, along with the logic for relying on the change schedule, in their respirator programs. The change schedule should be included in written standard operating procedures (SOPs).

(2) Change chemical canisters/cartridges according to manufacturer's directions, or based on objective data obtained as indicated in reference 15-4.

(3) Chemical cartridge/canister air-purifying respirators may be used (up to their maximum use concentration) for protection against substances without good warning properties, including isocyanates, if a cartridge change out schedule is developed and implemented.

(4) Identify respirator cartridges, canisters and filters by the information provided on the approval labels as well as the color-coding required by reference 15-6.

NOTE:

Some foreign (European/EU) respirator cartridges use a color-coding system that differs from American (ANSI) standards. Where local situations may have the potential for use of EU or other local national standards, training and supplemental labeling must be provided.

1506. Breathing Air Requirements

a. Breathing air or sources of breathing air for supplied air respirators or SCBAs shall meet at least the minimum Grade D breathing air requirements of references 15-3 and 15-5.

b. Activities shall conduct monitoring of the breathing air quality at least quarterly. Test results shall be provided to the OSH office. Records of such air quality monitoring shall be maintained by the OSH office for 5 years.

NOTE:

Monitoring does not apply to ambient air breathing apparatuses.

c. In addition to quarterly air quality monitoring to ensure Grade D breathing air, activities shall equip compressor systems with either-high temperature or continuous carbon monoxide monitor and alarm systems or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the activity shall monitor the air supply at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm. Activities shall equip all

new and/or upgraded air compressor systems with continuous carbon monoxide monitor and alarm systems. Calibrate, monitor, and alarm systems on compressors used for supplying breathing air according to the manufacturers instructions.

- d. Activities purchasing breathing air from outside sources shall comply with reference 15-3.

1507. Respirator Selection Considerations

a. Activities shall only use respirators that are currently approved by the National Institute for Occupational Safety and Health (NIOSH) or NIOSH/Mine Safety and Health Administration (MSHA). References 15-6 and 15-7 provide general respirator selection guidance.

NOTE:

Host countries may require respiratory protection that meets standards and certifications they establish for foreign national employees. Where foreign legislation applies, activities shall issue respiratory protection to the employees that meet the host nation criteria.

b. The Defense Supply Center Richmond (DSCR) issues specific national stock numbers (NSNs) for NIOSH or NIOSH/MSHA-approved respirators. Specific NSNs are assigned to each manufacturer's approved respirator so that activities are assured they will receive the same respirator each time they order it by its NSN. Activities can order equipment on line from the DSCR website at <http://www.dscr.dla.mil/catalogs/catalog.html>.

c. As a minimum, the RPPM shall consider the following factors to correctly assess the nature of the hazard requiring respiratory protection and the type of respirator to be used:

- (1) The current workplace evaluation conducted by the cognizant industrial hygienist
- (2) The chemical, physical, and toxicological properties of the contaminant such as:
 - (a) Warning properties of the contaminant gas or vapor (smell, taste, eye irritation or respiratory irritation)
 - (b) Whether employees can absorb the contaminant through the skin
 - (c) Whether any of the contaminants are immediately dangerous to life or health (IDLH) or whether the contaminant would produce injurious effects after prolonged exposure
- (3) Concentration of the contaminant in the atmosphere. Where the activity cannot identify, or reasonably estimate the employee exposure, it shall consider the atmosphere to be IDLH.
- (4) Permissible exposure limit (PEL) for the contaminant(s)
- (5) Whether an oxygen-deficient or oxygen-rich atmosphere exists or may be created

(6) Whether toxic, flammable or explosive by-products are present or may be produced

(7) The nature, extent and frequency of the duties personnel will be performing (e.g., welding, painting, etc.) in the work area

(8) Sorbent efficiency and service life of cartridge or canister

(9) Any possibilities of high heat reaction with sorbent material in the cartridge or canister

(10) Any possibility of shock sensitivity (explosion hazard) of the substances absorbed on the cartridge or canister sorbent

(11) The assigned protection factor or degree of protection provided

The RPPM shall select respiratory protection equipment using the assigned protection factors listed in chapter 9 of reference 15-4.

d. Respirators for Entry into IDLH Atmospheres. Should it become necessary to enter an oxygen deficient atmosphere (< 19.5 percent oxygen) or an IDLH atmosphere, personnel shall only use the following types of respirators:

(1) Full facepiece, open circuit; pressure-demand SCBA with an air cylinder rated for at least 30 minutes

(2) Full facepiece, closed circuit; pressure-demand SCBA (the lowest rated service life of these devices is 60 minutes)

(3) A full facepiece combination pressure-demand supplied-air respirator equipped with an auxiliary self contained air supply of 15 minutes to ensure escape from the IDLH area. Personnel shall only use the auxiliary self-contained air supply for egress purposes. If the self-contained air supply (15 minute supply) is insufficient to ensure escape, then personnel must use an SCBA.

e. Firefighting. Full facepiece, pressure demand SCBA approved by NIOSH and meeting National Fire Protection Association (NFPA) requirements that is equipped with an air cylinder rated for at least 30 minutes.

f. Respiratory Protection for Medical Personnel. Medical personnel who wear respirators shall comply with this chapter (and 29 CFR 1910.139 for protection against tuberculosis (TB) until the OSHA TB Standard is issued).

g. For safe entry procedures into IDLH atmospheres, and for interior structural fire fighting, refer to reference 15-3.

1508. Medical Evaluations

Activities shall not fit test personnel or assign them to work in, or permit them to enter, areas requiring respiratory protection unless they have been medically evaluated per references 15-3 and 15-9.

Shipboard personnel undergoing shore firefighting training are not required to obtain medical qualification or respirator fit testing for SCBAs, including the OBA, prior to reporting for training.

1509. Respirator Fit Testing

a. Fit Testing. Activities shall fit test each individual required to use a respirator-with a tight-fitting facepiece, at the time of initial fitting and annually thereafter. Activities shall perform fit testing according to reference 15-3 and 15-10.

b. All tight-fitting positive and negative pressure respirators shall be either qualitatively or quantitatively fit tested by activities initially and annually. To wear full face, negative pressure, air purifying respirators in atmospheres up to their assigned protection factor of 50, personnel must be quantitatively fit tested and the respirator must achieve a fit factor of at least 500, which equates to a safety factor of 10

c. Recordkeeping. The RPPM shall document respirator fit testing and include, make, model, style and size, method of test and test results, strip chart recording or other recording of test results for quantitative fit test, test date and the name of the instructor/fit tester. This information is required to be established and retained per reference 15-3.

1510. Inspection and Cleaning of Respirators

Only personnel who have received training through the RPPM shall perform the cleaning, inspection and maintenance of respiratory protective equipment per reference 15-3.

1511. Respiratory Protection Training

The activity shall ensure proper respirator use by providing all employees required to use respirators with training per reference 15-3. Activities shall train supervisors, persons issuing respirators and emergency rescue teams per reference 15-6. Activities shall document that training occurs in a manner that is understandable to the respirator wearer and that respirator wearers can demonstrate knowledge of at least the following aspects of respiratory protection:

- a. The nature and degree of respiratory hazards
- b. Respirator selection based on specific hazards
- c. Why the respirator is necessary and how improper fit, usage or maintenance can compromise the protective effect of the respirator
- d. The limitations and capabilities of the respirator

- e. How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions
- f. How to inspect, put on and remove, use and check the seals of the respirator
- g. The procedures for maintenance and storage of the respirator
- h. How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators
- i. Wearing contact lenses in contaminated atmospheres with respiratory protection is permitted
- j. Know when to change chemical cartridges/canisters according to the established change out schedule.
- k. The general requirements of the respiratory standard.

1512. RPPM Training

- a. Because of the large variation in quality of respiratory protection training available for RPPMs, and because of the complexity of respiratory protection, the Navy has defined minimum acceptable training for RPPMs.
- b. The RPPM shall pass one of the following training courses before activities appoint them as the RPPM:
 - (1) The OSHA Training Institute Course 222 or 222A
 - (2) The NIOSH Course 593
 - (3) The Navy RPPM course, Respiratory Protection Program Management (A-493-0072)
 - (4) Any respiratory protection course that has at least 32 hours of training including, but not limited to, the topics listed below:
 - (a) Respiratory hazards
 - (b) Federal standards applicable to respirators
 - (c) Minimum respiratory protection program requirements and administration
 - (d) Respirator types, selection, certification and limitations
 - (e) Respirator cleaning, maintenance and inspection
 - (f) Qualitative and quantitative fit testing, including actual laboratory fit testing

- (g) Breathing air quality
- (h) Medical considerations
- (i) Respirator training
- (j) Confined spaces/IDLH atmospheres
- (k) Special problems in program administration (facial hair, lens fogging, and communication)
- (l) Standard operating procedures.
- (m) Cartridge change out schedules.

c. For current respiratory protection information, consult sources such as the Navy Environmental Health Center (NEHC), OSHA and NIOSH home pages.

d. The Navy requires a course certificate from the OSHA, NIOSH or Navy course as proof of training. If employees attend another course, the Navy requires both the course certificate and a course syllabus specifying training topics and number of hours as proof of training.

e. The Navy does not require assistant or alternate RPPMs to comply with section 1512b. Those assisting with respirator program training, fit testing or other program implementation, however, should receive training appropriate to the responsibilities assigned. For example, the RPPM can provide on-the-job training, or the command might require the assistant to complete formal training. Personnel assigned by the RPPM to conduct respirator fit testing should be trained and evaluated according to clause 5 and Annex A1 of reference 15-10 (ANSI Z88.10-2001), but in all cases must receive training appropriate to perform the tasks assigned by the RPPM.

1513. Responsibilities

a. Commanders, Commanding Officers and Officers in Charge shall establish a comprehensive respiratory protection program and appoint a qualified RPPM in writing. The Navy encourages small activities with few employees utilizing respirators to negotiate with host commands for RPPM service. As a minimum, commanders shall ensure that the respiratory protection program, provides:

(1) A centrally located facility staffed to maintain and issue respiratory protection equipment. The program shall provide one or more centrally located facilities at an activity depending on its nature and size. Facility personnel shall:

(a) Ensure that activities issue only respirators approved by NIOSH or jointly by NIOSH/MSHA.

(b) Maintain all respiratory protection equipment in a sanitary and serviceable condition.

(c) Store all respiratory protection equipment in a designated clean area.

(2) Written SOPs governing the selection, care, issue and use of respirators. Activities shall also develop and post worksite SOPs in the general area. SOPs shall include emergency and rescue guidance, as necessary. SOPs shall include cartridge change out schedules as appropriate.

(3) Respiratory protection training per reference 15-3 and section 1511, for all respirator users and their supervisors and personnel who issue and/or maintain respirators

(4) Procedures to ensure that all employees have received medical evaluations required by reference 15-3 and section 1508

(5) A completed appendix 15-A for each employee requiring a medical examination for respirator use

(6) Fit testing per section 1509

(7) Procedures to ensure that all sources of breathing air meet the requirements cited in section 1506

(8) An annual audit of the program by the RPPM. The annual IH review of the respiratory protection program does not fully meet this requirement but may provide data used in the evaluation.

(9) Arrangements for fit testing and respiratory protection program support to ships in port that have a collateral duty safety officer by either the supporting tender, by Navy Environmental and Preventive Medicine Units or by shore support activities (command safety offices or medical activities)

(10) For RPPMs to successfully complete required training.

(11) Establish and implement cartridge change out schedules and describe the objective information or data on which they are based in the written respirator program.

b. Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Ensure the medical qualification requirements of the Respiratory Protection Program agree with reference 15-3. A physician or the following individuals under the supervision of a physician may conduct the medical evaluation: a nurse practitioner, an occupational health nurse, a physician's assistant, a preventive medicine technician or an independent duty hospital corpsman. Reference 15-9 details the required medical evaluation protocols for respirator users. The health care professional must return the completed appendix 15-A containing the medical written recommendation to the worker and command RPPM. The medical recommendation shall provide the following information:

(a) The worker's ability to wear the respirator

(b) Any limitations on respirator use, or recommendations for a different respirator based on the worker's medical condition or relating to the workplace conditions in which the respirator will be used

(c) The requirement, if any, for the worker to report back to the medical facility for follow-up medical evaluations

(d) A statement that the health care professional has provided the worker with a copy of the written recommendation.

(2) In support of the RPPM, BUMED shall:

(a) Provide RPPMs with an annual written evaluation on the effectiveness of their program based on occupational medicine and industrial hygiene reviews.

(b) Make occupational health professionals available to the RPPM for consultation on all aspects of the respiratory protection program.

(c) Provide activities with direct assistance and service in conducting their training and fit testing programs.

(d) Provide an evaluation of respiratory hazards.

(3) In support of afloat commands, BUMED shall provide fit testing and respiratory protection program support to ships in port that have a collateral duty safety officer by either the supporting tender, by Navy Environmental and Preventive Medicine Units or by shore support activities (command safety offices or medical activities).

c. Employees shall obtain the respiratory protection equipment selected by the RPPM, and inspect, use and maintain such equipment per the instructions and training received. At a minimum employees shall:

(1) Inspect the respiratory protection equipment before and after each use per reference 15-3, and return the equipment to the central respirator facility when its use is no longer required or when any malfunction is noted.

(2) Perform user seal checks per the manufacturer's instruction or per reference 15-3. If a successful user seal check cannot be performed, the employee will not wear the respirator.

(3) Report any malfunction of the respirator to their immediate supervisor. If the respirator requires repair or replacement, return it to the respirator facility.

(4) Guard against damage to or loss of respiratory protection equipment.

(5) Change respirator cartridges/canisters according to established change out schedule.

Chapter 15

References

- 15-1. OPNAVINST 5100.19D CH-1 of 30 Aug 01 Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)
- 15-2. NAVSEA 389-0288, Radiological Controls
- 15-3. 29 CFR 1910.134 Respiratory Protection (as amended) (NOTAL)
- 15-4. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision
- 15-5. Compressed Gas Association, Inc. Commodity Specification for Air, Pamphlet G-7.1-1997.
- 15-6. American National Standards Institute (ANSI), Z88.2-1992, American National Standard, Practices for Respiratory Protection, (NOTAL)
- 15-7. NIOSH Respirator Decision Logic, NIOSH Publication 87-108, May 1987 (NOTAL)
- 15-8. NEHC Technical Manual, Medical Surveillance Procedures Manual and Medical Matrix, latest revision
- 15-9. American National Standards Institute (ANSI), Z88.10-2001 American National Standard for Respirator Fit Testing Methods, (NOTAL)

FOR OFFICIAL USE ONLY (When Filled In)

**Appendix 15-A
RESPIRATOR USE QUESTIONNAIRE**

EMPLOYEE	SSN	POSITION	
SUPERVISOR	PHONE	CODE	DEPARTMENT

CIRCLE THE TYPE OF RESPIRATOR(S) TO BE USED:

AIR-SUPPLIED (tight-fitting)	AIR-PURIFYING (powered) (tight-fitting)
AIR-SUPPLIED (hooded)	AIR-PURIFYING (powered) (hooded)
OPEN-CIRCUIT SCBA	COMBINATION AIRLINE/SCBA
CLOSED-CIRCUIT SCBA	AIR-PURIFYING (non-powered): (Specify)
	filtering facepiece or elastomeric
	N, P, R 95, 99, 100
	Type chemical cartridge

WORK EFFORT: (CIRCLE ONE)

Light Moderate Heavy Strenuous

EXTENT OF USAGE: (CIRCLE ONE)

1. On a daily basis
2. Occasionally - but more than once a week
3. Rarely - or for emergency situations only

LENGTH OF AVERAGE WORK DAY IN RESPIRATOR:

SPECIAL WORK CONDITIONS: (i.e., high places, temperature/humidity extremes, hazardous materials, other protective clothing worn, climbing, etc.)

MEDICAL WRITTEN EVALUATION

1. No restrictions on the respirators circled above
2. Respirator use with some restrictions
3. No respirator use allowed
4. Alternate respirator recommended

Comments/Restrictions

Routine Follow-up medical evaluation required: (under 35)(35-45)(over 45)
5 yrs 2 yrs 1 yr

Or due to medical findings return: Date

Employee has been given a copy of this recommendation.

Health care professional's Signature

Date

Sections 133, 1071-87, 3012, 5031, and 8012, Title 10
USC & Exec. Order 9397 (Privacy Act of 1974) Apply

CHAPTER 16

OCCUPATIONAL SAFETY AND HEALTH STANDARDS

1601. Discussion

a. Heads of Federal agencies must establish procedures for the development of agency occupational safety and health (OSH) standards. Agencies must also comply with the standards issued for the private sector by the Secretary of Labor, under Section 6 of the Occupational Safety and Health Act (OSH Act).

b. The Department of Defense (DoD) and Navy follow the Occupational Safety and Health Administration (OSHA) standards; however, reference 16-1 contains provisions for alternates to the OSHA standards, supplemental standards, other special standards and exceptions for military unique equipment, systems and operations.

c. This chapter provides guidance and direction for the development and application of standards within the Navy Occupational Safety and Health (NAVOSH) program.

1602. NAVOSH Standards

NAVOSH standards consist of the following:

a. OPNAV instructions and Chief of Naval Operations (CNO)(N45)-approved instructions issued by commands having specific technical cognizance or assigned technical responsibility in reference 16-2. NAVOSH standards include national consensus and proprietary standards referenced in the instructions. OPNAV instructions based on OSHA standards may simply refer to a specific OSHA standard (e.g., 29 CFR 1910.95) or may paraphrase, transpose or otherwise adopt the standard without altering the basic criteria (unless the alteration applies to more stringent criteria, such as lower exposure limits, increased monitoring frequency, etc.). The CNO instruction may also refer to or adopt the latest edition of an OSHA reference standard. See appendix 16-A for a current listing of approved NAVOSH standards not elsewhere invoked. See reference 16-3 for NAVOSH standards for forces afloat.

b. OSHA standards, including emergency temporary standards OSHA issues under the provisions of the OSH Act. This includes national consensus standards specifically referred to in OSHA standards.

NOTE:

When both the Navy and OSHA have standards applicable to a given situation, activities shall use the more stringent of the two.

c. Navy occupational exposure limits (OEL) for chemical contaminants that include:

(1) 1989 OSHA permissible exposure limits (PELs) found in 29 CFR 1910.1000 Tables Z-1, Z-2 and Z-3

(2) Substance specific regulations issued by OSHA under section 6(b) of the

Occupational Safety and Health Act of 1970

(3) Navy developed standards. When there is no OSHA PEL or Navy developed standard, the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV) shall be used as the Navy OEL. When the OEL is based on a limit derived from the OSHA Z-1, Z-2 or Z-3 Tables, reports of data shall include the ACGIH TLV as additional guidance.

d. Alternate OSHA standards that the Deputy Under Secretary of Defense (Environmental Security) (DUSD(ES)) authorizes, subject to Department of Labor (DOL) approval. See appendix 16-A for a current listing of approved alternative standards.

e. Special DoD or Navy standards, rules and regulations or technical publications that govern on-the-job safety and health applicable to military-unique equipment, systems and operations.

f. Nationally recognized sources of OSH guidance (such as the ACGIH, the American National Standards Institute (ANSI) and the National Fire Protection Association (NFPA)) will be used when there is no OPNAV instruction or OSHA standard.

NOTE:

National Institute for Occupational Safety and Health (NIOSH) criteria documents are proposals only and not mandatory unless adopted by one of the sources listed above.

1603. Alternate Standard Approval

The cognizant headquarters command must make the determination to modify a NAVOSH standard for application to its operations. The headquarters command shall submit proposed alternate standards to CNO (N45), who in turn, shall submit the alternate standard to DUSD(ES) for approval, through the Assistant Secretary of the Navy (Installations and Environment) (ASN(I&E)).

NOTE:

Activities shall not submit NAVOSH standards developed according to section 1602e to DUSD(ES) for approval.

The proposed alternate standard must provide protection at least equivalent to the NAVOSH standard it replaces. The following procedures apply:

a. Prior to forwarding to DUSD(ES), CNO (N45) shall forward alternate standards proposals to the Deputy Assistant Secretary of the Navy (DASN) (CP/EEO). DASN will forward the standards to civilian employee organizations having national consultation rights with the Navy for review and comment.

b. After receipt of comments from employee organizations, or after a 45-day response period has elapsed, CNO (N45) will forward the alternate standard to DUSD(ES) through ASN(I&E). The alternate standard shall include a summary statement that delineates the

differences between the applicable NAVOSH standard and the proposed alternate standard, a justification for the change and a summary of comments from civilian employee organizations.

1604. Application

Activities shall apply NAVOSH standards in Navy workplaces, worldwide, with the following exceptions:

a. In the case of uniquely military equipment, systems and operations, activities shall apply Navy rules and regulations consisting of specialized standards, specifications and procedures to minimize hazards and prevent mishaps. The Navy shall review and strengthen these special rules and regulations continuously, and include appropriate provisions of the NAVOSH standards consistent with military design configuration and the requirement to develop and maintain combat capability.

b. Certain operations are subject to mandatory safety standards or rules derived from separate or specific statutory authority (e.g., explosive safety standards issued under the authority of 10 U.S.C. 172 (1970) and Nuclear Safety and Health Standards issued under the authority of 42 U.S.C. Sections 2012, 2021, 2121(b), and 2201(b) (1976)). Provided there is no substantive conflict, the application of these special functional standards does not exempt any workplace from other NAVOSH standards that address conditions not specifically covered by the special rules. For example, a naval weapons station is subject to special explosive safety standards and is also subject to NAVOSH standards for machine guarding, eye protection, etc.

c. In overseas workplaces, where status of forces agreements (SOFAs) specify different standards, those standards take precedence, subject to the same limiting rationale set forth in paragraph 1604b.

d. Where personnel of different DoD components, or of DoD components and other Federal agencies work in the same installations, host-agency standards shall govern the DoD components and other Federal agencies involved. When other agency standards conflict with OSHA standards, DoD components shall refer the matter to DUSD(ES).

Chapter 16

References

16-1. DOD Instruction 6055.1 19 Aug 1998, DOD Occupational Safety and Health Program (NOTAL)

16-2. OPNAVINST 5100.8G of 2 July 1986, Navy Safety and Occupational Safety and Health Program

16-3. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

Appendix 16-A
Approved NAVOSH Standards from Headquarters Commands
Having Technical Cognizance

<u>Document</u>	<u>Governing Area</u>
SPAWARINST 5100.9D	Electronic Safety Ashore
OPNAVINST 5100.27	Navy Laser Hazards Control Program
MIL-HDBK 1025/10	Safety of Electrical Transmission and Distribution Systems
OPNAV P-45-117-6-98	Electrical Safety Field Guide

Approved NAVOSH Alternative Standards

NAVSEA S6740-AA-SAF-010	Alternative standard for certification of gas-free engineering used in maintenance operations.
NAVFAC P-307	Alternative standard for third party certification cranes used in longshoring.

CHAPTER 17

ASBESTOS CONTROL

1701. Applicability

- a. The provisions of this chapter apply to industrial and construction activities and supplement the Department of Labor (DOL) Standards, references 17-1 through 17-3.
- b. Shore activities shall conduct shipboard work per this chapter and reference 17-3. Chapter B1 of reference 17-4 describes the asbestos control program for forces afloat.
- c. Whether State and local requirements in asbestos removal and disposal work are applicable depends on whether the workers are Federal or contract workers and if the requirements originate from State and local occupational safety and health (OSH) or from Clean Air Act requirements. Applicability is a complex legal issue that should be decided by qualified legal counsel familiar with the particular jurisdictions in question. Appendix 17-A provides assistance to legal counsel in determining applicability of state and local requirements.

1702. Discussion

- a. This chapter provides guidance for controlling or eliminating the exposure of Navy personnel to asbestos during the use, removal, and disposal of asbestos-containing materials (ACM).
- b. Navy policy is to eliminate asbestos hazards by substitution with asbestos free material or, where this is not possible, through the use of engineering, administrative controls and respiratory protection. Do not remove installed asbestos containing materials, which are in good condition, for the sole purpose of eliminating asbestos.

Commands shall use only suitable asbestos substitute materials approved through identification and testing. Commands shall not use existing supplies of ACM whenever there are acceptable substitutes.

Navy personnel worldwide shall strictly enforce and adhere to the standards and controls discussed in this chapter.

- c. Asbestos is a general term that applies to a variety of naturally occurring mineral silicates, e.g., chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and actinolite asbestos or any products composed of these minerals.

Asbestos is generally a fibrous material that is incombustible and possesses high tensile strength, good thermal and electrical insulation properties, and moderate to good chemical resistance. The beneficial properties of asbestos make it ideal for many diverse uses such as:

- (1) Application of ACM Thermal System Insulation (TSI) to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat energy transfer or water condensation

(2) Surfacing. ACM is sprayed on, troweled on, or otherwise applied to surfaces such as acoustical plaster on ceilings, fireproofing materials on structural members or other materials on surfaces for fireproofing, acoustical, or other purposes.

(3) Miscellaneous. ACM that is not TSI or surfacing (such as brakes, clutches, floor covering, gaskets, roofing, and cementitious materials).

d. Asbestos is now known to be a major health hazard. Inhalation of asbestos fibers may cause asbestosis, pleural thickening, lung cancer and mesothelioma and also may cause cancer of the gastrointestinal tract. If exposure is combined with smoking, the risk of developing lung cancer is increased dramatically.

e. The extended latency period of asbestos-related disease, lack of adequate past exposure data, effects of other carcinogens, and the variability of human response make safe levels of exposure difficult to determine. Between the first asbestos exposure and the appearance of symptoms, latency periods of 20 to 40 years have been observed.

1703. Permissible Exposure Limit and Excursion Limit

a. Permissible Exposure Limit (PEL). The PEL for asbestos is 0.1 fibers per cubic centimeter (f/cc) of air, calculated as an 8-hour time-weighted average (TWA) exposure. Fibers are particles having a length-to-width ratio of three (or more) to one (3:1), and 5 micrometers or longer.

b. Excursion Limit (EL). The EL is 1.0 f/cc averaged over a 30-minute sampling period. Personnel using the PEL shall also consider the EL.

c. Employee Notification. Affected employees shall receive notice of exposure, in writing per references 17-1, 17-2 and/or 17-3.

1704. Control of Asbestos in the Workplace Environment

Chapter 5 discusses the basic principles for controlling hazards in the occupational environment, including substitution with less hazardous material (HM), engineering controls (e.g., isolation, ventilation), and the use of personal protective equipment (PPE). Prepare written asbestos control procedures, which set forth these engineering and work practice controls and review and update, as necessary. References 17-1, 17-2, and 17-3 require specific work practices and engineering controls based on the type of ACM and type of work. Commands shall train project personnel per reference 17-5 and prohibit administrative controls, such as employee rotations, as a means of keeping the exposure below the PEL.

a. General Workplace Control Practices

(1) Cognizant headquarters activity will approve non-asbestos-containing substitute materials, which shall replace ACM. Replacement or substitution of friable ACM, such as asbestos thermal insulation and sprayed on asbestos, is of primary concern because friable ACM are loosely bound and can easily crumble or be pulverized.

(2) Whenever practicable, handle, mix, apply, remove, cut, score, or otherwise work asbestos in a wet state sufficient to prevent the emission of airborne fibers in excess of the PEL. Do not remove asbestos cement, mortar, coating, grout, or similar material containing asbestos from its container (e.g., bag, box, etc.) without wetting, enclosing or ventilating to prevent any airborne release of asbestos. When wetting decreases its usefulness, use enclosures or ventilation to reduce the emission of airborne fibers. Do not apply materials containing asbestos by spray methods, under any circumstances.

(3) Establish regulated areas as required by section (e) of references 17-1, 17-2, and 17-3. Do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics when involved in asbestos-related work activities in the regulated area.

(4) Establish procedures to minimize the accumulation of asbestos-laden waste, dust, and scrap materials. Institute specific procedures for the containment of asbestos dust and handling of ACM to minimize the possibility of secondary air contamination. Promptly clean up and dispose of wastes and debris contaminated with asbestos in leak-tight containers. Adequately wet material and use high efficiency particulate air (HEPA) filtered vacuum cleaning for removal, clean up and disposal of debris. Prohibit dry sweeping, shoveling, or other dry clean-up of asbestos-containing dust and debris at all times.

(5) Collect and dispose of asbestos waste, scrap, debris, bags, containers, equipment, and asbestos-contaminated clothing (consigned for disposal) which may produce, in any foreseeable way, airborne concentrations of asbestos fibers in sealed, impermeable bags, or other impermeable containers labeled per paragraph references 17-1, 17-2 and 17-3. Color code containers to ensure easy recognition. Double bag and dispose of asbestos waste per the procedures outlined in paragraph 1706.

(6) Control the spread or increase of airborne concentrations of asbestos by minimizing the effects of environmental conditions, such as wind, ventilation systems, or high traffic conditions. Enclosures or temporary curtains may be used for this purpose.

(7) To minimize exposure potential, perform asbestos removal operations, to the extent feasible, during the second or third shifts or on weekends and holidays.

(8) Strictly adhere to good housekeeping procedures and dust control measures to minimize the release of asbestos fibers during removal/rip-out of ACM. These are the most important and effective means of reducing downtime before reoccupying a workspace after asbestos abatement operations. Always conduct a visual inspection after clean-up. Thoroughly clean and inspect work areas prior to air sampling and releasing asbestos-controlled areas for unrestricted access per reference 17-6.

(9) A "Qualified" or "Competent" person, as defined in references 17-2 or 17-3, shall supervise all asbestos work performed in a regulated area.

b. Lunch areas. Provide and maintain lunch areas per references 17-1, 17-2 and 17-3 as applicable to the work being performed.

c. Ventilation. Use local exhaust ventilation to ensure that atmospheric levels of asbestos do not exceed the PEL. General requirements for the design and use of ventilation to re-

duce exposures are listed below.

(1) Local exhaust ventilation requirements below apply to both permanent and temporary systems.

(a) Provide fixed local exhaust ventilation, equipped with pre-filters and HEPA filters, at the point of airborne fiber generation. Capture velocities shall be high enough, under the specific environmental conditions, to move any generated asbestos fibers to the air collection/filtration device. In addition, duct transport velocities shall be high enough to prevent accumulation of fibers in the duct. Provide clean out points for necessary periodic maintenance. Do not directly exhaust ventilation systems used to control asbestos exposures or emissions, to another regulated area or outside environment unless the ventilation system has HEPA filters. Each ventilation unit (e.g., fixed system, air mover or vacuum cleaner) to be used for asbestos work must be approved by the cognizant industrial hygienist. Each work site ventilation set up must be approved by the competent or qualified person. Prohibit routine re-circulation of filtered air from asbestos operations. Use the design criteria in reference 17-7 for facilities with permanent asbestos operations.

(b) Design, construct, install and maintain local exhaust ventilation, and dust collection systems per references 17-7 and 17-8. Position local exhaust ventilation in a regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter.

(c) Provide a HEPA-filtered local exhaust ventilation system for all hand-operated and power-operated tools that may release asbestos fibers in excess of the PEL.

(d) Maintain exhaust filtration systems to prevent performance degradation of the ventilation systems as a whole. Perform such maintenance work under the provisions of this chapter.

(e) Where negative pressure enclosures are required, maintain a minimum negative pressure of 0.02 inches water gauge within an enclosure. A minimum of four air changes per hour are required. Direct air movement, in a negative pressure enclosure (NPE), away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.

(2) The following requirements are applicable for permanent ventilation systems only:

(a) Test permanent ventilation systems every 3 months or within 5 days of a process or control change that may result in changes to employee exposure. Maintain test records indefinitely. Alternatively, in cases where ventilation systems are equipped with continuous monitoring devices such as pressure taps, manometers, or pitot tubes, log the gauge readings each day the system is used. Also, note non-use days.

(b) Design the system for ease of maintenance and accessibility per references 17-7 and 17-8. Evaluate each system component including hoods, ductwork, clean-out hatches, exhaust fans and air pollution control devices (APCD). Locate the exhaust fan after the APCD. Locate the exhaust fan and APCD in a protected or restricted room. Treat this as a regulated area. Use bag-in bag-out housing on all filtration systems.

d. Personal Protective Clothing and Related Facilities

(1) Personnel handling ACM during abatement actions, or where the concentration of airborne fibers is likely to exceed the PEL, shall wear, as a minimum, the protective clothing listed below:

(a) Full body, one-piece disposable coveralls (use of breathable coveralls is permitted in cases where employees will need to shower. An attached hood is highly desirable).

(b) Hoods (head covering) that extend beyond the collar of the coverall, completely protecting the neck area

(c) Medium weight rubber gloves and a thin cotton under-glove to absorb perspiration

(d) Slip-resistant plastic shoe covers, or heavy polyethylene shoe covers with slip-resistant soles, or lightweight rubber boots;

(e) Face shields, vented goggles, or other appropriate protective equipment, whenever the possibility of eye irritation exists.

NOTE:

The proper use of protective clothing requires that all openings be closed and that garments fit snugly about the neck, wrists, and ankles.

Accordingly, tape the wrist and ankle junctions, as well as the collar opening on the outer disposable coveralls to prevent contamination of skin and underclothing without restricting physical movement. Employees shall not wear personal clothing under the coveralls.

(2) Establish decontamination areas adjacent and connected to the regulated area, for Class I work (as defined in the glossary) involving more than 25 linear or 10 square feet of TSI or surfacing ACM or presumed asbestos containing material (PACM). Decontamination areas shall consist of an equipment room, shower area, and clean room in series. Use a remote shower and clean room where it is not feasible to locate the shower between the equipment room and the clean room, where the work is performed outdoors, or when the work takes place on board a ship. When using remote facilities, employees shall remove contamination from their work suits with a HEPA vacuum and don clean suits in the equipment room. Employees shall then proceed to a remote shower and clean room to complete the decontamination process.

(3) Establish decontamination areas adjacent to the regulated area for Class I work involving less than 25 linear or 10 square feet of TSI or surfacing ACM or PACM and for Class II and Class III asbestos work operations where exposures exceed the PEL, or where no negative exposure assessment has been produced. The decontamination area shall consist of an equipment room or area that is covered by an impermeable drop cloth on the floor/deck or horizontal working surface. This area shall be of sufficient size that equipment can be cleaned and

personnel may remove their protective equipment without spreading contamination beyond the area. Employees shall proceed to a shower and clean room that may be remote from the regulated area.

(4) Activities shall launder asbestos-contaminated clothing to prevent release of airborne asbestos fibers in excess of the PEL. Contracts governing the laundering of asbestos-contaminated clothing shall specifically require that contractors comply with the precautions specified in references 17-1 through 17-3 as applicable. Contracts shall include specific notice of the asbestos-related hazards and require that the contractor notify his/her personnel of the associated hazards. Seal asbestos-contaminated clothing in impermeable bags and transport in containers that have the required warning labels.

e. Respiratory Protection

(1) General Guidance

(a) Employ engineering control measures and work practices to control and contain airborne asbestos fibers to the lowest feasible level. Do not achieve compliance with the PEL by employee rotation. Do not achieve compliance with the PEL by the use of respirators alone except under the following conditions:

1. During the time period necessary to commence engineering control measures

2. In work situations in which the feasible control methods are not sufficient to maintain the airborne concentration of asbestos fibers below the PEL

3. In work situations where engineering and workplace controls have been implemented, but no industrial hygiene monitoring data exists to verify that such controls have reduced exposure levels below the PEL

4. During emergencies.

(b) Establish a respiratory protection program per chapter 15 of this manual.

(2) Types of Respirators. Select only respirators approved for protection against exposure to asbestos by the National Institute for Occupational Safety and Health (NIOSH). Collect asbestos air sampling data under section 1709b to determine the level of respiratory protection per references 17-1, 17-2, and 17-3.

(a) Do not use disposable respirators for protection against airborne asbestos fibers. The minimum respirator shall be a half facepiece, air-purifying respirator with high efficiency particulate air filter(s) (P100 filters).

(b) For 8-hour TWA exposures of up to 10 times the PEL, use a half face air-purifying respirator with high efficiency particulate air filter(s) (P100 filters) to reduce the concentration of respirable airborne asbestos fibers below the PEL. Use of this respirator for Class I work must comply with paragraph 1704e(3)(a)1.

(c) For 8-hour TWA exposures greater than 10 but not exceeding 50 times the PEL, use a full facepiece air-purifying respirator with high efficiency particulate air filter(s) (P100 filters) to reduce the concentration of respirable airborne asbestos fibers in the respirator below the PEL. Use of this respirator for Class I work must comply with paragraph 1704e(3)(a)1. Refer to paragraph 1704f(2) for fit testing requirements.

NOTE:

Provide personnel with a tight fitting powered air-purifying respirator in lieu of any negative pressure respirator if it is requested and provides adequate protection.

(d) For 8-hour TWA concentrations greater than 50, but not exceeding 100 times the PEL, use a tight fitting powered air purifying respirator equipped with high efficiency particulate air filter(s) or a supplied air respirator operated in a continuous flow mode to reduce the concentration of respirable airborne asbestos fibers in the respirator below the PEL. Use of this respirator for Class I work must comply with paragraph 1704e(3)(a)1.

(e) For 8-hour TWA concentrations of greater than 100, but not exceeding 1000 times the PEL, use a full facepiece supplied air respirator operated in a pressure demand mode to reduce the concentration of respirable airborne asbestos fibers in the respirator below the PEL. Use of this respirator for Class I work must comply with paragraph 1704e(3)(a)1.

(f) If the 8-hour TWA concentration exceeds 1000 times the PEL, or is unknown, use a full facepiece supplied air respirator operated in pressure demand mode equipped with an auxiliary positive pressure, self-contained breathing apparatus (SCBA) to reduce the concentration of respirable airborne asbestos fibers in the respirator below the PEL.

(3) Respirator Requirements

(a) In addition to selecting respirators per references 17-1, 17-2 and 17-3, wear respirators during the following:

1. All Class I asbestos work requires respirators. For all Class I work above 1 f/cc as an 8-hour TWA, use a full face, pressure-demand supplied air respirator equipped with either an auxiliary self-contained air supply or HEPA egress cartridges. For all Class I work between 0.1 and 1 f/cc as an 8-hour TWA, use a tight-fitting powered air-purifying respirator equipped with HEPA filters. For Class I work below 0.1 f/cc as an 8-hour TWA, use any respirator approved for asbestos.

2. Class II and III asbestos work usually requires a half-mask air purifying respirator, other than a disposable respirator, equipped with high efficiency particulate air filter(s) (P100 filters). Refer to appropriate sections in references 17-2 and 17-3 on roofing work.

3. Class IV workers shall wear the same respiratory protection as other workers in the regulated area.

(b) Employees who wear respirators may leave the regulated area to wash their faces and respirator face pieces whenever necessary to prevent skin irritation associated with respirator use.

(c) Do not assign personnel to tasks requiring the use of respirators if, based upon his/her most recent medical evaluation, it is determined that the employee will be unable to function normally while wearing a respirator or that the safety or health of the employee or other personnel will be impaired by his/her use of a respirator.

f. Respirator Fit Testing

(1) Per chapter 15, fit test all Navy personnel issued respirators, equipped with tightly fitting face pieces (including pressure demand respirators) for protection against airborne asbestos fibers in the negative pressure mode.

(2) Perform either quantitative or qualitative fit tests at the time of initial fitting and at least annually thereafter. Conduct fit testing per chapter 15. Qualitative fit testing is acceptable for both half mask and full-face respirators worn as protection against asbestos concentrations that are less than 10 times the PEL.

g. Communication of Hazards

(1) Communicate asbestos hazards with warning signs and labels to all potentially exposed personnel as indicated in references 17-1, 17-2 and 17-3.

(2) The National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations also contain specific labeling requirements for waste disposal. Off-site disposal requires the name of the waste generator and location where the waste was generated, as specified in reference 17-9.

1705. Asbestos Clearance Level Criteria

The asbestos clearance level, as defined here, provides quality control following asbestos abatement operations. Perform all asbestos abatement operations with strict adherence to good housekeeping procedures and adequate control measures to minimize, to the greatest extent feasible, the release of asbestos fibers to the environment. All asbestos abatement projects shall undergo a thorough visual inspection. Thoroughly clean any visible dust or debris per reference 17-6. Clearance air sampling is required of all regulated areas for which a negative exposure assessment has not been made. As a minimum, perform air sampling as described below:

a. Sample the air inside the regulated area to determine if airborne fibers are less than 0.01 f/cc using the NIOSH 7400 method. The minimum sample volume is 1200 liters. Use aggressive air sampling where required by law, to perform clearance air sampling. The necessary number of samples may vary significantly, and therefore, should be determined locally on a case-by-case basis. Criteria used to determine if the abatement project is considered complete are listed below for both buildings and ships:

(1) For buildings, the project is considered complete if all samples collected are less than 0.01 f/cc.

(2) For ships, the project is considered complete if samples collected are no greater

than 0.01 f/cc or background, whichever is greater, as measured prior to starting the non-emergency asbestos abatement but never greater than 0.1 f/cc.

(a) Reference 17-10 and NIOSH 7400 method provides technical guidance for sampling and analysis.

(b) Personnel who are not industrial hygienists (IHs), industrial hygiene technicians, or certified exposure monitors, shall complete a formal course, per appendix 17-B, prior to performing asbestos sampling. In addition, on the job training (OJT) is required under the direction of the cognizant IH. The cognizant IH will certify, in writing, as competent, those individuals who successfully complete the OJT.

1706. Disposal Procedures

In preparation for disposal, adequately wet asbestos wastes prior to double bagging in heavy-duty plastic bags (at least 6 mils thick) or other suitable impermeable containers (see section 1712 (Environmental Protection)). Mark all bags or containers with standard asbestos warning labels. Distinctively color code asbestos waste containers, such as bags, trash cans, dumpsters, etc., to ensure easy recognition. Label dumpsters ASBESTOS WASTE ONLY or otherwise mark per paragraph 1704g. Exercise care to prevent bags and other containers from rupturing when being moved to a dumpster or other suitable vehicle for transport to a proper disposal site.

1707. Asbestos Management Program Ashore

The program objective is to provide a long-term solution that will eliminate personnel exposure to airborne asbestos fibers in occupied Navy buildings and workspaces through cost effective management of ACM. The program contains three key elements:

- a. Survey and material evaluation
- b. Operations and maintenance (O&M) program
- c. Design and abatement. Centrally managed Hazard Abatement funds are available for design and abatement of high priority asbestos projects.

The asbestos program manager (APM) shall be appointed in writing by the activity commanding officer to implement the activity's Asbestos Management Program. The APM may be located in the public works department, safety and health department, or the environmental department. Smaller activities, with host-tenant relationships, may use the building manager or facilities representative to act as the liaison with the host, when a written agreement exists specifying that the host is responsible for carrying out the APM's duties. When such a written agreement exists, training requirements for the activity representative will be as mutually agreed. The protection of employees and program elements of appendix 17-C are thereby met. Appendix 17-C provides details of the program and division of responsibilities.

1708. Training

Follow training and certification requirements of appendix 17-B. Maintain training records per

chapter 6. Make copies of references 17-1, 17-2 or 17-3 and other handout type training materials available to employees upon request at no charge.

1709. Industrial Hygiene Surveillance

a. Exposure Monitoring Plan. Establish a exposure monitoring plan to characterize exposures for every employee with occupational exposure to asbestos. In this regard, perform both personal (employee) air sampling and environmental (area) monitoring. Collect personal air samples in the breathing zone of the employee. Give the employee or designated employee representative the opportunity to observe sampling or monitoring. Within a class or category of similar operations, conduct sampling with a frequency and pattern to accurately and reproducibly represent the airborne levels produced by a typical operation within the class or category. Sampling, of all areas where repetitious asbestos work is performed, is at the discretion of the cognizant IH per references 17-1, 17-2, and 17-3. Sample each non-repetitious asbestos removal operation at least once to determine the maximum exposure potential of that operation. Personnel performing personal air sampling to determine exposure to airborne asbestos, who are not IHs, industrial hygiene technicians, or certified exposure monitors, shall complete a formal course in asbestos sampling per appendix 17-B. In addition, on the job training is required under the direction of the cognizant IH. The cognizant IH will certify in writing as competent those individuals who successfully complete the OJT.

b. Method of Sampling. Collect breathing zone air samples, which are representative of the 8-hour TWA exposure of each employee for comparison to the PEL, and breathing zone air samples, which are representative of the 30-minute short term exposure for comparison to the EL, per appendix A of references 17-1, 17-2 and 17-3. Collect environmental air samples using the current revision of the NIOSH 7400 method along with any additional guidance from local requirements. The Industrial Hygiene Field Operations Manual provides additional information on sampling (reference 17-10).

c. Method of Measurement. Analyze asbestos air samples using personnel who have successfully completed the NIOSH 582 or an equivalent course. Perform analysis of samples by the appropriate method, ORM or NIOSH, and specify the laboratory results. .

d. Monitoring Records and Retention. Complete documentation on the Industrial Hygiene Air Sampling Survey form (NEHC 5100/13) or computerized equivalent. Record and retain exposure data as indicated in Chapter 8.

1710. Asbestos Medical Surveillance Program (AMSP)

a. General. The AMSP is designed to identify signs and symptoms of asbestos related medical conditions as early as possible through periodic medical evaluations. The program also provides for identification of medical conditions which may increase the employee's risk of impairment from asbestos exposure and for counseling of workers on medical conditions related to asbestos exposure.

b. Criteria for Inclusion of Personnel in the AMSP. Include personnel who meet the exposure criteria defined in references 17-1, 17-2, and 17-3 in the AMSP. These persons must remain in the program for the duration of current exposure. Civil service employees may be required to complete medical examinations related to asbestos exposure per reference 17-11.

c. Criteria for Removal of Personnel from the AMSP

(1) Give an employee in the AMSP who changes to a job either without asbestos exposure, or at a level below the current exposure criteria, a termination evaluation to meet requirements per references 17-1, 17-2, and 17-3. The Chief, Bureau of Medicine and Surgery (BUMED) has a program for persons previously in the AMSP, or with significant past exposure, to continue receiving medical evaluations on a voluntary basis. The details of this program are contained in references 17-12 and 17-13.

(2) When an employee enrolled in the AMSP is being removed from the potential exposure assignment, and has never met the exposure criteria in references 17-1, 17-2, and 17-3, termination evaluation is not required (for example, persons assigned to work on asbestos removal teams who have not been exposed at or above the current exposure levels). Document the health record (HR) when the employee is removed from the AMSP, and forward the employee's name and social security number to Navy Environmental Health Center (NEHC) stating the employee never met the applicable exposure criteria.

(3) When an employee has been inappropriately enrolled in the AMSP, accomplish administrative removal only by the responsible occupational health care professional (with occupational medical physician consultation as needed). Remove an employee from the program if review of the records indicate the employee did not meet the OSHA criteria for inclusion in the program, and there is no medical evidence (based on AMSP medical parameters) to warrant inclusion in the AMSP. Clearly document the HR with the reason(s) for removal, and forward the employee's name and social security number to NEHC stating the employee should not have been placed in the AMSP.

(4) Provide information and counseling on the value of continuing medical evaluations to employees upon termination of employment.

(a) Upon termination of Navy employment, civilian personnel are no longer eligible for health care in Navy clinics and cannot be followed up in the Navy AMSP. Encourage employees to obtain a copy of their health record for follow-up with their private physician.

(b) Retired military personnel may continue to be seen in Navy clinics for AMSP evaluations, subject to the conditions listed in reference 17-14. Guidelines and protocols for entry in the AMSP based on past exposure are found in references 17-12 and 17-13.

d. Medical Personnel Performing Medical Surveillance Evaluations. Perform medical evaluations by, or under the supervision of a credentialed physician. Nurse practitioners, physician assistants, independent duty corpsmen and occupational health nurses authorized to provide health assessments under the BUMED Quality Assessment and Improvement Program may provide AMSP medical evaluations using approved medical protocols. The health care provider shall have a copy of this chapter, including references 17-1, 17-2, and 17-3.

e. Situational Medical Evaluations. Conduct situational evaluations in response to a specific incident for which a hazardous overexposure is suspected. Personnel are not enrolled in the AMSP on the basis of a one-time exposure to asbestos or a one-time medical evaluation for actual or potential asbestos exposure unless the criteria per references 17-1, 17-2, and 17-3

are met. When exposure does not meet the criteria for enrollment in the AMSP, use AMSP HR forms to document situational evaluations for asbestos exposures, and mark the outside of the HR ASBESTOS per reference 17-15. Do not forward AMSP forms to NEHC unless the employee is placed in the AMSP.

f. Content of Medical Evaluation. Reference 17-12 contains the medical protocols for the AMSP employees in compliance per references 17-1, 17-2, and 17-3.

(1) Physical Evaluation. Reference 17-13 lists the forms required for documenting the review and update of medical and occupational history and evaluation.

(2) Pulmonary Function Test. Follow the spirometry testing requirements found in reference 17-13.

(3) Chest X-ray. The local radiologist shall read the posterior/anterior chest X-ray required per references 17-1, 17-2, and 17-3, and follow procedures in reference 17-13. This must be forwarded for a reading using the International Labor Organization (ILO) 1980 Classification for Pneumoconioses (generally known as B readings).

(4) Medical Evaluation Counseling. Counsel all personnel on the AMSP regarding the results of the medical evaluation. Complete and distribute A Physician's Written Opinion per references 17-1, 17-2, and 17-3. Include information from the local radiologist's official interpretation of the chest X-ray as part of the medical evaluation; if the B reading results received subsequently provide new information, inform the employee of those findings.

g. Documentation of Medical Evaluations. Document AMSP medical data in the HR and maintain the data in accordance with reference 17-16. Prominently mark the exterior of the HR and x-ray jackets ASBESTOS as described in reference 17-15.

h. Medical Records Including Chest X-rays. Reference 17-17 requires all medical information collected for occupational health purposes, including all AMSP medical data, to be maintained in the HR.

(1) Transfer, Retention and Retirement of Health Records. Forward HRs, per reference 17-15, when the active duty member or civilian employee transfers to another location or retires. Original chest x-rays are a permanent part of the HR and the medical clinic shall maintain them, per references 17-1, 17-2, and 17-3. If the civilian transfers to an agency outside the Navy, the Navy medical clinic shall maintain the chest films and retire them per current directives.

(2) Access to Medical Data. Refer to chapter 8 along with references 17-15 and 17-18 to implement the Federal regulations relating to the access and privacy of medical data.

(3) Central Asbestos Medical Surveillance Program Registry. The Navy's mechanism for reporting occupational diseases is via the safety chain of command to the Naval Safety Center. The NEHC maintains a central database registry containing selected information related to persons in the Asbestos Medical Surveillance Program. This is used to track the number of persons routinely being evaluated for potential asbestos-related disease and health record information related to asbestos medical evaluations for program management purposes.

1711. Work Performed by Private Contractors

For shore activities, each contract for work to be performed by a private contractor in Navy facilities and ships in the United States and abroad shall comply with appropriate OSHA and EPA regulations. Use reference 17-19 to design asbestos actions in Navy facilities. Invoke reference 17-20 in contracts for the control of asbestos operations on board Navy ships undergoing construction and/or repair.

1712. Environmental Protection

a. General

(1) All Federal, State and local requirements, including emission standards and the provisions of this chapter shall be met. For additional information, contact the cognizant IH and the activity environmental coordinator.

(2) Technical assistance for air pollution control is available upon request from the COMNAVFACENGCOM Engineering Field Divisions (EFDs).

b. Properly contain and dispose of asbestos materials in an approved landfill.

NOTE:

Some States may require asbestos materials to be disposed of in specially designated landfills. Consult with the activity environmental coordinator prior to any disposal. Where State or local agencies regulate asbestos as a hazardous waste (HW), the Navy may be responsible for the management of all administrative and disposal requirements as the generator of the waste. The landfill operator will record specific locations within landfills used for the disposal of asbestos materials and the cognizant naval facility will retain a copy per reference 17-1, 17-2, 17-3 and 17-9. This practice should reduce the possibility of future unearthing and rupturing of disposal containers.

c. Application of National Emission Standards for Asbestos

(1) The National Emission Standards for Asbestos are contained in references 17-9 and 17-21. The standards include:

(a) Demolition and renovation of ACM in facilities and ships. Prior to renovation or demolition of facilities, conduct a thorough re-inspection for ACM by an asbestos inspector qualified per appendix 17-B.

(b) Spray application of materials containing 1 percent or more asbestos is prohibited for buildings, structural members, pipes, and conduits.

(c) Fabrication, installation, and disposal of waste asbestos. Specific requirements shall be met for these processes. Procedures for the handling, transporting, and disposing of asbestos waste are prescribed in the standards (reference 17-1, 17-2, and 17-3). Wet down waste asbestos or asbestos-contaminated material and place in impermeable containers

prior to transporting for disposal. Label the containers as prescribed in this chapter. In addition label transport vehicles during loading and unloading in conformance to reference 17-9.

(2) The activity shall ensure that written notification to the EPA and/or cognizant State or local agencies is done per reference 17-9 and State and local regulations. Guidance on notification requirements is found in appendix 17-D.

1713. Responsibilities

The following responsibilities are assigned to provide an effective asbestos exposure control program throughout the Navy.

a. Echelon Two Commands shall:

(1) Ensure that asbestos containing materials are not procured or specified when a suitable substitute exists per paragraph 1702 b.

(2) Review and purge current military specifications, technical manuals, contract guide specifications, and any other document or specification under Navy cognizance of requirements for asbestos-containing materials where suitable non-asbestos substitutes exist.

(3) Provide advice and technical assistance, in coordination with BUMED, to define appropriate engineering and work practice controls, and identify acceptable non-asbestos-containing substitute materials.

(4) Ensure program support by providing the resources required to meet the regulatory standards for the control of asbestos as prescribed by this chapter.

b. The Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Centrally manage the AMSP.

(2) Provide professional, technical, and training assistance to commands for the purpose of evaluating the potential for asbestos exposure.

(3) Manage the asbestos fiber counting and identification program, including laboratory quality control.

(4) Establish the AMSP Medical Surveillance Program Control Database and provide data analysis and trend analysis to CNO (N45) at least semiannually.

c. The Commander, Naval Facilities Engineering Command shall:

(1) Provide technical oversight of the facility Asbestos Management Program Ashore.

(2) Maintain guide specifications in accordance with current regulations.

d. The Commander, Naval Sea Systems Command shall maintain reference 17-20 in accordance with current regulations.

e. Commanding officers of shore activities shall:

- (1) Apply control measures, monitoring procedures, O&M plans prescribed in this chapter, to processes using asbestos or ACMs.
- (2) Comply with the National Emission Standard for Asbestos per Section 1712.
- (3) Budget resources in order to meet these asbestos control requirements.
- (4) Appoint an APM, in writing, to implement the requirements of section 1707 and appendix 17-C.
- (5) Maintain a current copy of applicable State and local asbestos requirements.

Chapter 17

References

- 17-1. Title 29 Code of Federal Regulations (CFR) section 1910.1001, OSHA Asbestos Standard, latest revision, (NOTAL)
- 17-2. Title 29 Code of Federal Regulations (CFR) section 1926.1101, OSHA Asbestos Construction Standard, latest revision, (NOTAL)
- 17-3. Title 29 Code of Federal Regulations (CFR) section 1915.1001, Asbestos Exposure in all Shipyard Employment Work, latest revision, (NOTAL)
- 17-4. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)
- 17-5. Title 40 Code of Federal Regulations (CFR) 763 Chapter I-EPA Appendix C Subpart E, Asbestos Model Accreditation Plan, latest revision
- 17-6. American Society for Testing and Materials (ASTM) Standard Practices for Visual Inspection of Asbestos Abatement Projects (E1368-90).
- 17-7. American Conference of Governmental Industrial Hygienists, Inc., Committee on Industrial Ventilation, Industrial Ventilation A Manual of Recommended Practice (NOTAL)
- 17-8. American National Standards Institute (ANSI) Z9.2-2001, American National Standard for Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems, (NOTAL)
- 17-9. Title 40 Code of Federal Regulations (CFR) Part 61 of July 1997, Subpart M, (NOTAL)

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17-10. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision.

17-11. Title 5 Code of Federal Regulations (CFR) 339.205 and 339.301, Medical Qualification Determination, (NOTAL)

17-12. NEHC Technical Manual, Medical Surveillance Procedures Manual and Medical Matrix, latest revision.

17-13. NEHC Technical Manual, Occupational Medicine Field Operations Manual, latest revision.

17-14. NAVMEDCOM 6320.3B Medical and Dental Care for Eligible Persons at Navy Medical Department Facilities.

17-15. NAVMED Publication P-117, Manual of the Medical Department (NOTAL)

17-16. SECNAVINST 5212.5D of 22 Apr 98, Navy and Marine Corps Records Disposition Manual

17-17. Title 29 Code of Federal Regulations (CFR) 1910.1020 Subpart Z, Access to Employee Exposure and Medical Records, (NOTAL)

17-18. SECNAVINST 5211.5D of 17 July 92, Department of the Navy Privacy Act (PA) Program

17-19. Naval Facilities Engineering Command Guide Specifications (NFGS) -13281

17-20. NAVSEA STANDARD ITEM NO 009-10 of 2 July 1993, Control of Shipboard Asbestos Containing Material (ACM)

17-21. 42 U.S.C. Section 7401 et seq. of Nov 25 1990 (PL 101-549), Clean Air Act, (NOTAL)

Appendix 17-A
Determining Applicability of State and Local Requirements
on Asbestos Removal and Disposal

<u>Asbestos Workers</u>	<u>Federal OSHA</u>	<u>State/Local OSHA</u>	<u>Federal CAA</u>	<u>State/Local CAA</u>
<u>Federal (On Base)</u>				
Removal	Yes ²	No	Yes	Yes
Disposal	Yes ²	No	Yes	Yes
<u>Federal (Off Base)</u>				
Removal	Yes ²	No	Yes	Yes
Disposal	Yes ²	No	Yes	Yes
<u>Contractor (On Base)</u>				
Removal	Yes	No	Yes	Yes
		(Exclusive Juris)		
		Yes	Yes	Yes
		(Concurrent Juris)		
Disposal	Yes	No	Yes	Yes
		(Exclusive Juris)		
		Yes	Yes	Yes
		(Concurrent Juris)		
<u>Contractor (Off Base)</u>				
Removal	Yes	Yes	Yes	Yes
Disposal	Yes	Yes	Yes	Yes

OSHA - Occupational Safety and Health Administration

CAA - Clean Air Act

¹ Material in this appendix was provided by the Navy Office of General Counsel

² under E.O.12196

Appendix 17-B

ASBESTOS TRAINING AND CERTIFICATION REQUIREMENTS **LISTED BY TYPE OF OPERATION**

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
DESIGN OF PROJECTS WHICH INVOLVE REMOVAL OF ACM OR WORK IN PROXIMITY OF ACM/PACM	ARCHITECTS, ENGINEERS, PLANNERS, ESTIMATORS (P&Es) & APMs	ABATEMENT PROJECT DESIGNER	3-DAY ABATEMENT PROJECT DESIGNER COURSE	YES 1 DAY	** 40 CFR 763.92
REVIEW OF PROJECTS TO DETERMINE ADEQUACY OF CONTROL	ENGINEERS, INDUSTRIAL HYGIENISTS, SAFETY PERSONNEL & APMs	ABATEMENT PROJECT DESIGNER	3-DAY ABATEMENT PROJECT DESIGNER COURSE	YES 1 DAY	** 40 CFR 763.92
PERSON RESPONSIBLE FOR ASBESTOS REMOVAL, ENCAPSULATION, ENCLOSURE AND/OR REPAIR (CLASS I AND II ASBESTOS WORK)	ASBESTOS ABATEMENT SUPERVISOR OR COMPETENT PERSON, QUALIFIED PERSON, ROICC PERSONNEL	ASBESTOS ABATEMENT CONTRACTOR/ SUPERVISOR	5-DAY ASBESTOS ABATEMENT CONTRACTOR/ SUPERVISOR TRAINING COURSE	YES 1 DAY	29 CFR 1915.1001(o)(4)(i) 29 CFR 1926.1101(o)(4)(i) ** 40 CFR 763.92 40 CFR 61 Subpart M
PERSON RESPONSIBLE FOR MAINTENANCE AND HOUSEKEEPING (CLASS III AND IV ASBESTOS WORK)	MAINTENANCE AND HOUSEKEEPING SUPERVISORS, COMPETENT, QUALIFIED PERSON	NONE	2-DAY OPERATIONS AND MAINTENANCE TRAINING	YES NOT SPECIFIED	29 CFR 1915.1001(o)(4)(ii) 29 CFR 1926.1101(o)(4)(ii)
PHYSICAL GATHERING OF SUSPECTED ACM/PACM SAMPLES FOR LAB I.D.	SAFETY PERSONNEL INDUSTRIAL HYGIENIST, P&Es, & FACILITY INSPECTORS	ASBESTOS INSPECTOR	3-DAY ASBESTOS INSPECTOR COURSE	YES 1 DAY	29 CFR 1915.1001(k)(5) 29 CFR 1926.1101(k)(5) ** 40 CFR 763.92
DEVELOPMENT OF ASBESTOS MANAGEMENT PLANS & ASBESTOS O&M PLANS	FACILITY INSPECTORS, SAFETY PERSONNEL & IHS	ASBESTOS MANAGEMENT PLANNER	2-DAY ASBESTOS MANAGEMENT PLANNER COURSE (INSPECTOR ACCREDITATION REQUIRED AS PREREQUISITE)	YES 1 DAY	** 40 CFR 763.92

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TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
LABORATORY ANALYSIS OF AIRBORNE SAMPLE	INDUSTRIAL HYGIENE, SAFETY PERSONNEL	PROFICIENCY ANALYTICAL TESTING (PAT) ROUNDS	5-DAY NIOSH 582 COURSE OR EQUIVALENT	ES (PAT)	29 CFR 1910.1001 APP. A 29 CFR 1915.1001 APP. A 29 CFR 1926.1101 APP. A
I * A LIST OF ACCREDITED TRAINING SOURCES MAY BE OBTAINED FROM EPA-AHERA-NDAAC, C/O VISTA COMPUTER SERVICES SUITE 304, 6430) I ROCKLEDGE DRIVE, BETHESDA, MD 20817. 1-800-462-6706) ** APPLIES TO PUBLIC AND COMMERCIAL BUILDINGS					
			CONTRACTOR/ SUPERVISOR TRAINING COURSE.		
PERSONNEL WHO ENGAGE IN CLASS II WORK ONLY	ABATEMENT WORKERS	NONE	8-HOUR ASBESTOS TRAINING. REQUIREMENTS ARE RELAXED WHEN ONLY ONE GENERIC CATEGORY OF BUILDING MATERIAL IN CLASS II WORK IS DONE.	YES NOT SPECIFIED	29 CFR 1915.1001(k)(9) 29 CFR 1926.1101(k)(9)
PERSONNEL WHO ENGAGE IN CLASS III OPERATIONS ONLY	MAINTENANCE WORKERS	NONE	16-HOUR OPERATIONS & MAINTENANCE. REQUIREMENTS ARE RELAXED WHEN ONLY ONE GENERIC CATEGORY OF BUILDING MATERIAL IN CLASS III WORK IS DONE.	YES NOT SPECIFIED	29 CFR 1915.1001(k)(9) 29 CFR 1926.1101(k)(9)
PERSONNEL WHO ENGAGE IN CLASS IV OPERATIONS ONLY AND HOUSEKEEPING WHERE ACM OR PACM IS PRESENT	MAINTENANCE & CUSTODIAL WORKERS	NONE	2-HOUR ASBESTOS AWARENESS TRAINING	YES 2 HOURS	29 CFR 1910.1001 (j)(7) 29 CFR 1915.1001(k)(9) 29 CFR 1926.1101(k)(9)
RESPONSIBLE FOR OVERALL ASBESTOS PROGRAM	ACTIVITY ASBESTOS PROGRAM MANAGERS	LETTER OF APPOINTMENT FROM COMMANDING OFFICER	3-DAY ABATEMENT PROJECT DESIGNER COURSE AND 2 DAY ASBESTOS INSPECTOR/ MANAGEMENT PLANNER COURSE, NFESC ASBESTOS PROGRAM MANAGER COURSE (INSPECTOR ACCREDITATION REQUIRED AS	YES 1 DAY	RECOMMENDED TRAINING

* A LIST OF ACCREDITED TRAINING SOURCES MAY BE OBTAINED FROM EPA-AHERA-NDAAC, C/O VISTA COMPUTER SERVICES SUITE 304, 6430 ROCKLEDGE DRIVE, BETHESDA, MD 20817. **1-800-462-6706**
 ** APPLIES TO PUBLIC AND COMMERCIAL BUILDINGS

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED *	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
			PREREQUISITE)		
	ASBESTOS WORKPLACE MONITORS AND CLEARANCE SAMPLERS	NONE	2 DAYS AND ON THE JOB TRAINING	NONE	RECOMMENDED TRAINING
AUTOMOTIVE BRAKE AND CLUTCH	AUTO MECHANICS	NONE	2-HOUR AWARENESS PLUS HANDS-ON TRAINING	NONE	29 CFR 1910.1001(j)(7) 29 CFR 1915.1001 APP. L
GENERAL INDUSTRIES OPERATIONS ABOVE PEL (NOT OTHERWISE CLASSIFIED)	VARIOUS	NONE	2-HOUR AWARENESS AND OPERATION SPECIFIC	YES NOT SPECIFIED	29 CFR 1910.1001(j)(7)

* A LIST OF ACCREDITED TRAINING SOURCES MAY BE OBTAINED FROM EPA-AHERA-NDAAC, C/O VISTA COMPUTER SERVICES SUITE 304, 6430 ROCKLEDGE DRIVE, BETHESDA, MD 20817. **1-800-462-6706**

** APPLIES TO PUBLIC AND COMMERCIAL BUILDINGS

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Appendix 17-C

Asbestos Management Program Ashore

The Navy Asbestos Management Program Ashore consists of the following three elements: operations and maintenance (O&M) program, survey and material assessment, and design and abatement. These elements are the key components of an activity's asbestos program to protect personnel from asbestos exposure. The cornerstone of the program is the O&M program. The first step in the process is to designate an asbestos program manager (APM) per paragraph 1707. The APM is responsible for overseeing all aspects of the asbestos management program.

1. Operations and Maintenance Program

a. Objective. Ensure that personnel are properly trained and protected from asbestos exposure caused by inadvertent disturbance of asbestos-containing material (ACM). Provide a living document to manage and record all asbestos-related actions.

b. Scope. The O&M program provides the framework for an activity to manage and document all asbestos actions. An active and aggressive O&M program protects personnel by ensuring that any ACM or presumed asbestos containing material (PACM) is tested before maintenance or repair operation disturbs it, and that proper work practices are employed whenever ACM is disturbed. An O&M program includes: notification, work requests and controls, inventory and periodic surveillance, work practices, recordkeeping, training, and worker protection. The APM will incorporate elements of the O&M program into the activity's existing work request and control system to the greatest extent possible. Additionally, the APM will ensure the examining physician possesses the information required by references 17-1, 17-2 and 17-3. Guidance for developing an O&M program is given in Naval Facilities Engineering Service Center (NFESC) 70.2-010.1, "Model Operations and Maintenance Program for Buildings Containing Asbestos" and the National Institute of Building Sciences (NIBS), "Guidance Manual: Asbestos Operations & Maintenance Work Practices. Include each building with ACM in the O&M program until no ACM remains.

c. Responsibility. Activity.

d. Method. APM, COMNAVFACENGCOM Engineering Field Divisions (EFD), Public Works Center (PWC), other Navy sources, or contract.

e. Funding Source. Activity.

f. Support. EFDs will maintain open-ended reimbursable contracts for developing O&M plans, or assist with tailoring NFESC generic O&M plan to meet activity requirements.

2. Survey and Material Assessment

a. Objective. Locate, identify, and assess the condition of all types of ACM and PACM in shore facilities. Provide a record of survey results to determine the degree of hazard. A survey is extremely helpful in carrying out an asbestos O&M plan; however, the inventory can be developed, building by building, as needed, under the O&M program. If materials are not sampled,

presume all suspect material contains asbestos until laboratory analysis proves otherwise.

b. Scope. Inspect facilities to identify, locate, and assess the condition of all suspect friable and non-friable ACM. Inspectors will be trained by an EPA or State accredited asbestos building inspectors course. Assess the condition of the material to identify potential hazards and prioritize abatement actions. As a minimum, take identification samples of damaged and significantly damaged homogeneous areas. Guidance for survey and material assessment is defined in NFESC 70.2-010, "Asbestos Facility Inventory/Assessment Protocol." Prepare NAVOSH Deficiency Abatement Program/ Management Information System (DAP/MIS), form NEESA 3900/12, project formats, with cost estimates outlining recommended abatement actions for damaged and significantly damaged materials, per chapter 12 of this manual.

c. Responsibility. Activity.

d. Methods. In-house, PWC, other Navy sources, or contract. Forward DAP/MIS project formats to the EFDs, via chain of command outlined in NAVFACINST 5100.14A (NOTAL), for entry into the hazard abatement database.

e. Funding Source. Major claimant or activity.

f. Support. COMNAVFACENGCOM EFDs will maintain open-ended reimbursable contracts for conducting surveys and material assessments.

3. Design and Abatement

a. Objective. Develop and execute plans and specifications for hazard abatement projects to eliminate hazardous conditions caused by damaged or significantly damaged ACM. If ACM is removed, replace with asbestos-free materials, if available.

b. Scope. Develop abatement projects to remove, encapsulate, or enclose damaged or significantly damaged ACM. Project designers and contractors will be trained by an EPA or State-accredited asbestos project designer course. The projects will abate hazards, ensure worker and building occupant protection, and include proper procedures for final inspection, acceptance, and asbestos waste disposal.

c. Responsibility. Activity.

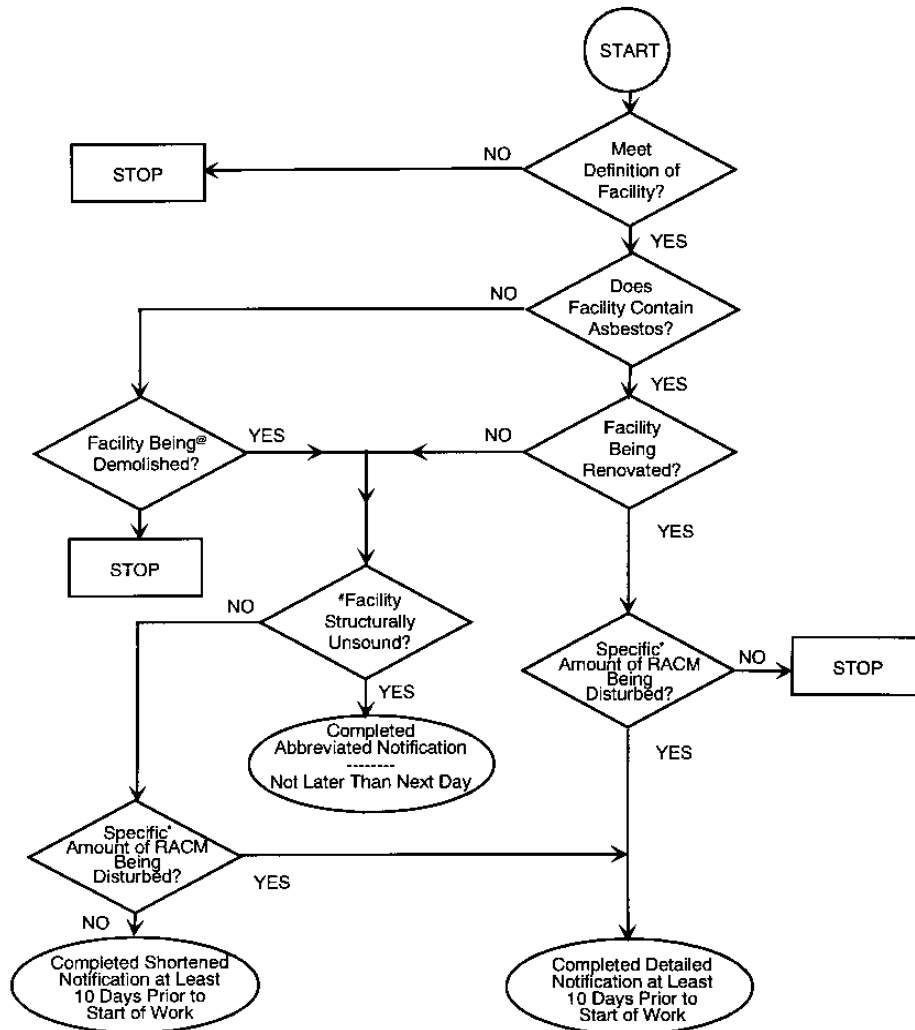
d. Method. In-house, PWC, other Navy sources, or contract.

e. Funding Source. COMNAVFACENGCOM centrally managed hazard abatement account, major claimant, and activity.

f. Support. COMNAVFACENGCOM EFDs will maintain open-ended reimbursable contracts for developing hazard abatement projects.

Appendix 17-D
17-Information from NESHAP Asbestos Regulations
(40CFR61, Nov 1990)

Decision Logic to Determine Notification Requirements



* Specific - At least 260 ft, 160 ft², or 35 ft³ of RACM

Under Order of State or Local Government Agency Because Facility Is Unsafe or in Danger of Imminent Collapse

@ The term "demolished" means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

For further information, consult the following in 40 CFR61:

Detailed Notification: Paragraph 61.145

Shortened Notification: Paragraphs 61.145(b)(1), (2), (3)(i) and (iv), and (4)(i) through (vii) and (4)(ix) and (4)(xvi).

Abbreviated Notification: Paragraphs 61.145 (b)(1), (2), (3)(iii), (4) (except (viii)), (5), and (c)(4) through (c)(9).

SAMPLE NOTIFICATION OF DEMOLITION AND RENOVATION

Operator Project #	Postmark	Date Received	Notification #		
I. TYPE OF NOTIFICATION (O - Original R - Revised C - Canceled):					
II. FACILITY INFORMATION (Identify owner, removal contractor, and other operator)					
OWNER NAME:					
Address:					
City:	State:	Zip:			
Contact:	Tel:				
REMOVAL CONTRACTOR:					
Address:					
City:	State:	Zip:			
Contact:	Tel:				
OTHER OPERATOR:					
Address:					
City:	State:	Zip:			
Contact:	Tel:				
III. TYPE OF OPERATION (D - Demo O - Ordered Demo R - Renovation E - Emerg Renovation):					
IV. IS ASBESTOS PRESENT? (Yes/No):					
V. FACILITY DESCRIPTION (Include building name, number, and floor or room number)					
Bldg. Name:					
Address:					
City:	State:	County:			
Site Location:					
Building Size	# of Floors:	Age in Years:			
Present Use:		Prior Use:			
VI. PROCEDURE, INCLUDING ANALYTICAL METHOD, IF APPROPRIATE, USED TO DETECT THE PRESENCE OF ASBESTOS MATERIAL:					
VII. APPROXIMATE AMOUNT OF ASBESTOS, INCLUDING: 1. Regulated ACM to be removed 2. Category I ACM Not Removed 3. Category II ACM Not Removed	RACM to be removed	Nonfriable Asbestos Material Not to be Removed		Indicate Unit of Measurement Below	
		Cat I	Cat II	UNIT	
Pipes				LnFt:	Ln m:
Surface Area				SqFt:	Sq m:
Vol RACM Off Facility Component				CuFt:	Cum:
VIII. SCHEDULED DATES ASBESTOS REMOVAL (MM/DD/YY) Start:				Complete:	
IX. SCHEDULED DATES DEMO/RENOVATION (MM/DD/YY) Start:				Complete:	

NOTE: States may require the use of state modified forms in place of the forms provided in this Appendix.

SAMPLE NOTIFICATION OF DEMOLITION AND RENOVATION (Cont'd)

X. DESCRIPTION OF PLANNED DEMOLITION OR RENOVATION WORK, AND METHOD(S) TO BE USED:		
XI. DESCRIPTION OF WORK PRACTICES AND ENGINEERING CONTROLS TO BE USED TO PREVENT EMISSIONS OF ASBESTOS AT THE DEMOLITION AND RENOVATIONS SITE:		
XII. WASTE TRANSPORTER # 1		
Name:		
City:	State:	Zip:
Contact Person:		Telephone:
WASTE TRANSPORTER # 2		
Name:		
Address:	State:	Zip:
Contact:		Telephone:
XIII. WASTE DISPOSAL SITE		
Name:		
Location:		
City:	State:	Zip:
Telephone:		
XIV. IF DEMOLITION ORDERED BY A GOVERNMENT AGENCY, PLEASE IDENTIFY THE AGENCY BELOW:		
Name:	Title:	
Authority:		
Date of Order (MM/DD/YY):	Date Ordered to Begin (MM/DD/YY):	
XV. FOR EMERGENCY RENOVATIONS		
Date and Hour of Emergency (MM/DD/YY):		
Description of the Sudden, Unexpected Event:		
Explanation of how the event caused unsafe conditions or would cause equipment damage or an unreasonable financial burden:		
XVI. DESCRIPTION OF PROCEDURES TO BE FOLLOWED IN THE EVENT THAT UNEXPECTED ASBESTOS IS FOUND OR PREVIOUSLY NONFRIABLE ASBESTOS MATERIAL BECOMES CRUMBLED, PULVERIZED, OR REDUCED TO POWDERED.		
XVI. I CERTIFY THAT AN INDIVIDUAL TRAINED IN THE PROVISIONS OF THIS REGULATION (40 CFR PART 61, SUBPART M) WILL BE ON-SITE DURING THE DEMOLITION OR RENOVATION AND EVIDENCE THAT THE REQUIRED TRAINING HAS BEEN ACCOMPLISHED BY THIS PERSON WILL BE AVAILABLE FOR INSPECTION DURING NORMAL BUSINESS HOURS. (Required 1 year after promulgation)		
_____ (Signature of Owner/Operator)		_____ (Date)
XVII. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT.		
_____ (Signature of Owner/Operator)		_____ (Date)

SAMPLE RECORD OF VISIBLE EMISSION MONITORING

Date of inspection (mo/day/yr)	Time of inspection (a.m./p.m.)	Air cleaning device or fugitive source designation or number	Visible emissions observed (yes/no), corrective action taken	Daily operating hours	Inspector's initials

SAMPLE AIR CLEANING DEVICE INSPECTION CHECKLIST

1. Air cleaning device designation or number	_____		
2. Date of inspection	_____	_____	_____
3. Time of inspection	_____	_____	_____
4. Is air cleaning device operating properly? (Yes/No)	_____	_____	_____
5. Tears, holes, or abrasions in fabric filter? (Yes/No)	_____	_____	_____
6. Dust on clean side of fabric filters? (Yes/No)	_____	_____	_____
7. Other signs of malfunctions or potential malfunctions? (Yes/No)	_____	_____	_____
8. Describe other malfunctions or signs of potential malfunctions	_____		

9. Describe corrective actions taken.	_____		

10. Date and time corrective action taken	_____	_____	_____
11. Inspected by			
_____	_____	_____	_____
(Print/Type Name)	(Title)	(Signature)	(Date)
_____	_____	_____	_____
(Print/Type Name)	(Title)	(Signature)	(Date)

SAMPLE WASTE SHIPMENT RECORD

Generators	1. Work site name and mailing address		Owner's Name		Owner's telephone no.	
	2. Operator's name and address				Operator's telephone no.	
	3. Waste disposal site (WDS) name, mailing address, and physical site location				WDS phone no.	
	4. Name and address of responsible agency					
	5. Description of materials		6. Containers No. Type		7. Total quantity m ³ (yd ³)	
	8. Special handling instructions and additional information					
	9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.					
Printed/typed name and title		Signature		Month Day Year		
Transporter	10. Transporter 1. (Acknowledgement of receipt of materials)					
	Printed/typed name and title		Signature		Month Day Year	
	Address and telephone no.					
	11. Transporter 2. (Acknowledgement of receipt of materials)					
Printed/typed name and title		Signature		Month Day Year		
Address and telephone no.						
Disposal Site	12. Discrepancy indication space					
	13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 12.					
	Printed/typed name and title		Signature		Month Day Year	

Instructions

Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.
2. If a demolition or renovation, enter the name and address of the company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.
3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.
4. Provide the name and address of the local, state, or EPA regional office responsible for administering the asbestos NESHAP Program.
5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is:
 - a. Friable asbestos material
 - b. Non-friable asbestos material.
6. Enter the number of containers used to transport the asbestos materials listed in Item 5. Also, enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below).
 - a. DM - Metal drums, barrels
 - b. DP - Plastic drums, barrels
 - c. BA - 6 mil plastic bags or wrapping
7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).
8. Use this space to indicate special transportation, treatment, storage, or disposal or Bill of Lading information. If an alternate WDS is designated, note it here. Emergency response telephone number or similar information may be included here.
9. The authorized agent of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

NOTES:

The waste generator must retain a copy of this form.

Transporter Section (Items 10-11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport. Enter date of receipt and signature.

NOTES:

The transporter must retain a copy of this form.

Disposal Site Section (Items 12-13)

12. The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received, as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to non-asbestos material is considered a WDS.

13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in item 12. The date is the date of signature and receipt of shipment.

NOTES:

1. The WDS must retain a completed copy of this form. The WDS must also send a completed copy to the operator listed in Item 2.
2. The waste must be delivered to the landfill within 35 days of the date in Item 9.

CHAPTER 18

HEARING CONSERVATION AND NOISE ABATEMENT

1801. Discussion

a. Hearing loss has been, and continues to be, a source of concern within the Navy, both ashore and afloat. Occupational hearing loss resulting from exposure to hazardous noise, the high cost of related compensation claims, and the resulting drop in productivity and efficiency highlight a significant problem that requires considerable attention. Noise control and hearing conservation measures contribute to operational readiness by preserving and optimizing auditory fitness for duty in Navy personnel.

b. Reference 18-1 contains the hearing conservation program for forces afloat.

c. Reference 18-2 describes the Department of Defense (DoD) hearing conservation requirements. Reference 18-3 is a Navy Environmental Health Center technical manual. It provides supplemental guidance concerning medical department procedures in support of the Hearing Conservation Program.

1802. Hearing Conservation Program Introduction.

The goal of the Navy hearing conservation program is to prevent occupational hearing loss and ensure auditory fitness for duty in the military and civilian workforce. The program includes the following:

a. Noise Measure and Analysis. Survey work environments to identify potentially hazardous noise levels and personnel at risk

b. Engineering Control. Reduction of noise at the source is in the best interest of the Navy and its personnel. Environments that contain or equipment that produces potentially hazardous noise will, whenever it is technologically and economically feasible, be modified to reduce the noise level to acceptable levels as established by this chapter. Section 1810 of this chapter provides specific guidance on noise abatement

c. Hearing Protective Devices. The use of personal hearing protective devices to limit noise exposure should only be an interim protective measure while implementing engineering controls. Where engineering controls are not feasible, activities shall employ administrative controls and/or the use of hearing protective devices.

d. Audiometry. The cognizant medical treatment facility shall conduct periodic hearing tests that will allow activities to monitor the effectiveness of the hearing conservation program. Early detection of temporary threshold shifts allows further protective action to be taken before permanent hearing loss occurs. Necessary follow-up evaluation will be conducted to ensure appropriate referral, treatment and early return to duty.

e. Education. Individuals exposed to hazardous noise, their supervisors, and people providing hearing conservation services (i.e., training, monitoring, hearing protection, etc.) will receive training. Training these individuals is vital to the overall success of a hearing

conservation program. An understanding of the permanent nature of noise-induced hearing loss, its negative effects on operational readiness and individual fitness for duty, the command's hearing conservation program, and the individual's responsibilities under the program are all essential for program effectiveness. Also, activities shall encourage all Navy employees to use hearing protective devices when exposed to hazardous noise during off-duty activities, e.g., from lawn mowers, chain saws, firearms, etc.

1803. Navy Occupational Exposure Limit (NOEL)

The following section gives the NOEL for occupational exposure to noise:

- a. For an 8-hour time-weighted average (TWA) of 84 decibels on the A-weighted scale (dB(A)) for frequencies of 20 to 16,000 Hertz (Hz))
- b. For periods of less than 16 hours in any 24-hour period, calculate the NOEL from the following equation:

$$T = \frac{16}{2^{\frac{L-80}{4}}}$$

Where:

T = time in hours (decimal)
L = effective sound level in dB(A)

NOTE:

When two or more periods of noise exposure of different levels comprise the daily noise exposure, their combined effect must be considered. If the sum of the following expression exceeds unity (i.e., > 1), then the mixed exposure exceeds the NOEL.

$$\frac{C_1}{T_1} + \frac{C_2}{T_2} + \dots + \frac{C_n}{T_n}$$

Where C indicates the total time of exposure at a specified noise level and T represents the time of exposure permitted at that level.

- c. For impact or impulse noise 140 dB peak sound pressure level
- d. When TWA exposures are greater than 84 dB(A), activities shall include personnel in the Navy's Hearing Conservation Program.

1804. Noise Measurements and Exposure Assessments

In order to effectively control noise, it is necessary to accurately measure noise according to standard procedures and properly evaluate the measurements against accepted criteria.

- a. Noise measurements shall be taken as part of the industrial hygiene survey.

(1) An IH, industrial hygiene technician, exposure monitor, occupational audiologist or other individual suitably trained by an IH is authorized to take noise measurements.

(2) Sound level meters shall conform, as a minimum, to the Type II requirements cited in reference 18-2. Suitably trained personnel shall use an acoustical calibrator, accurate to within plus or minus one decibel, to calibrate the instrument before each survey and to revalidate the calibration at the conclusion of the survey. Suitably trained personnel shall calibrate sound level meters and sound level calibrators electro-acoustically annually.

(a) Suitably trained personnel shall measure continuous or intermittent steady state noise with a sound level meter set for dB(A) scale, slow response.

(b) Suitably trained personnel shall measure impact or impulse noise as dB peak sound pressure level with an impact noise analyzer.

(3) In cases where circumstances such as high worker mobility, significant variations in sound levels, or a significant component of impulse noise make area monitoring generally inappropriate, suitably trained personnel shall conduct personal dosimetry. Personal noise dosimeters shall meet the requirements in reference 18-2.

Work environments where ultrasound is produced and hearing protection is not already used shall conform to the ultrasound exposure limits set forth in reference 18-2.

(4) Work environments found to have noise levels greater than 84 dB(A) (continuous or intermittent), or 140 dB peak sound pressure level for impact or impulse noise, shall be analyzed to determine the potential hazard and shall be resurveyed within 30 days of any significant modifications or changes in work routine which could impact/alter the noise intensity/exposure level.

(5) Suitably trained personnel shall conduct all noise measurements taken to determine an individual's exposure with the microphone of the measuring instrument placed at a height that most closely approximates the position/location of the worker's ear during normal working conditions. Work-centers may require repeat measurements during a single day and/or on different days of the week to account for the variations in noise level due to changes in operational schedules and procedures.

(6) The record of noise measurements shall be retained per the requirements of chapter 8 of this manual and include, as a minimum:

- (a) The number, type and location of the noise sources
- (b) Number and identification of personnel in the work area and their daily noise exposure and duration
- (c) Type, model, serial number of test equipment and calibration data
- (d) Location, date and time of noise measurements
- (e) Noise levels measured and hazard radius

(f) The name and signature of the person(s) who made the study.

(7) Personnel may record noise survey data on NEHC Forms 5100/17 and 5100/18.

b. TWA noise exposure assessments shall be determined for all personnel routinely working in hazardous noise areas and performing hazardous noise operations. These assessments are complex tasks that shall be performed by an IH or other person that an IH or audiologist judges to be competent. A complete analysis may require the use of octave band analyzers, recorders, and other specialized acoustical instrumentation such as personal noise dosimeters. The exposure assessment will identify which work areas, processes, and equipment produce hazardous levels of noise, determine the type of hearing protection necessary, and identify personnel at risk so they can be included in the hearing conservation program.

(1) Paragraph 1803 outlines the criteria used to determine the degree of compliance with applicable standards.

(2) Designate hazardous noise areas based on the following criteria:

(a) Any work area where the A-weighted sound level (continuous or intermittent) is or is reasonably expected to be greater than 84 dB(A)

(b) Any work area where the peak sound pressure level (impulse or impact noise) exceeds or is reasonably expected to exceed 140 dB.

(3) In the absence of a qualified professional's assessment and documentation to the contrary, activities shall consider personnel at risk if routinely exposed to sound levels greater than 84 dB(A), or for impact or impulse noise, 140 dB peak sound pressure level. These individuals shall be identified on a roster or equivalent database for inclusion in the hearing conservation program. Although this chapter requires hearing conservation measures when noise levels are greater than 84 dB(A), the implementation of all available measures may not be necessary in every case. For example, activities shall require visitors to a hazardous noise area to wear protection, but would not require visitors to have their hearing tested or be included on a roster of noise-exposed personnel. There may also be unique situations where sound levels rise unpredictably to greater than 84 dB(A) or above for short durations so that the wearing of hearing protective devices may be judged impractical or unnecessary. Activities shall document decisions to waive the use of hearing protective devices; such professional judgments shall be rendered by an IH or other qualified professionals, using approved instrumentation and considering all relevant factors.

(4) Determinations to exclude individuals who are already included in a hearing conservation program will be made only by professionals qualified to provide or evaluate noise exposure assessments. In no case will activities exclude individuals already included in a program based upon exposure assessment alone without concurrence from an audiologist or physician trained in occupational hearing loss. Such concurrence is necessary to avoid exclusion of personnel who are noise susceptible or at exceptional risk due to pre-existing hearing loss. Personnel who use hearing aids shall not use them in place of approved hearing

protectors. Hearing aids may not be used in conjunction with hearing protective devices except as approved by an audiologist or otolaryngologist on a case-by-case basis.

(5) Activity follow-up of exposure assessments shall include, as a minimum, the following elements:

(a) Identification of those responsible for designating work areas or equipment as noise hazardous

(b) Identification of individuals exposed to hazardous levels of noise, updating this roster at least semi-annually

(c) Identification of the medical facility responsible for audiometric monitoring

(d) Identification of those responsible for training personnel in the elements of the hearing conservation program.

(6) Activities shall notify each employee exposed to an 8-hour TWA of greater than 84 decibels of the results of the exposure assessment.

1805. Labeling of Hazardous Noise Areas and Equipment

Activities shall label designated hazardous noise areas and equipment that produce sound levels greater than 84 dB(A) or 140 dB peak sound pressure level. NAVMED 6260/2, Hazardous Noise Warning Decal, 8"x10.5" - NSN: 0105-LF-004-7200, and the NAVMED 6260/2A, Hazardous Noise Labels (displayed on hand tools), 1"x1.5"- NSN: 0105-LF-004-7800, are the approved decals and labels for marking hazardous noise areas or equipment. Equipment and/or power tools may be individually and permanently marked via a stencil (painted) or engraved with the words "Produces Hazardous Noise" or via the NAVMED 6260/2A, Hazardous Noise Warning Decal. To minimize foreign object damage, flight line tools may be stenciled as noise hazardous in lieu of the approved label. Alternatively, a prominently posted sign at the point where the tools are checked out stating that, "Certain Tools May be Noise Hazardous" may be used, provided that the IH survey or similar authoritative, detailed information is maintained readily available nearby for employees to consult on the noise levels produced by the particular tool they are about to use.

a. Activities shall not post an entire building as a hazardous noise environment unless nearly all areas within the building are designated hazardous noise areas.

b. Military combatant equipment is excluded from this labeling requirement. Personnel operating and maintaining combat equipment, however, must be made fully aware of hazardous noise exposure conditions.

c. Activities shall have the option of using additional means to alert employees to noise hazard operations. These may include posting barriers or using flashing lights to indicate hazardous noise conditions exist

1806. Hearing Testing and Medical Evaluation

Activities shall enter all Navy personnel, military and civilian, except those specifically excluded under paragraph 1804b, who are required to work in designated hazardous noise areas or with equipment which produces or is reasonably expected to produce exposure levels at or above an 8-hour TWA of greater than 84 dB(A) or with impulse exposures exceeding 140 dB peak sound pressure levels, into a hearing conservation program. Hearing conservation measures and medical evaluations of hearing tests shall be per the detailed procedures set forth in reference 18-3.

a. (Baseline) Hearing Tests

(1) All military personnel shall receive a reference-hearing test, recorded on a DD 2215, upon entry into naval service. Hearing tests performed at Military Entrance Processing Stations shall not be used as reference audiograms. All civilian personnel being considered for employment in an occupational specialty or area that involves routine exposure to hazardous noise shall receive a reference- hearing test. All reference hearing tests shall be preceded by at least 14 hours without exposure to hazardous noise. This requirement may not be met by wearing the appropriate hearing protective device. Reference hearing tests will not be conducted if there is evidence of a transient medical condition that would affect hearing thresholds.

(2) Navy employees presently in service who do not have a reference audiogram filed in their health record shall not be assigned to duty in a designated hazardous noise area involving exposure to hazardous noise until a reference- hearing test has been performed.

b. Monitoring Hearing Tests

(1) All personnel routinely exposed to noise in excess of the NOEL, and others determined to be at risk, shall be included in the hearing conservation program, have a reference (DD 2215) hearing test in their record and receive periodic monitoring hearing tests. Hearing tests shall be conducted at least annually thereafter for as long as the employee remains in a noise hazardous environment. Monitoring hearing tests shall also be conducted when there are individual complaints of hearing difficulties, e.g., difficulties in understanding conversational speech or a sensation of ringing or fullness in the ear(s). Follow-up evaluation shall be provided to assure appropriate referral, treatment and early return to duty.

(2) The monitoring audiogram shall be compared with the reference audiogram to determine if a significant threshold shift (STS) has occurred relative to the reference audiogram.

c. Exclusion From Future Noise Exposure. Activities shall consider individuals who exhibit a progressive series of permanent threshold shifts to be at high risk for further hearing deterioration. Accordingly, such personnel must be given special consideration under the hearing conservation program.

(1) Individuals monitored under the hearing conservation program who have their reference audiogram redefined due to worsening hearing on three separate occasions, or have hearing loss in both ears in which the sum of thresholds at the frequencies of 3000, 4000 and

6000 Hz exceeds a total of 270 dB, must obtain clearance from an audiologist, otologist or occupational medicine physician before returning to duties involving hazardous noise.

(2) If such clearance is inappropriate, the audiologist or medical officer in charge of the hearing conservation program will make specific recommendations to the individual's command. These may include the advisability of restriction from noise hazardous work, appropriate placement of the worker and/or the need for stricter enforcement of hearing protection policies.

d. Disposition Following Monitoring Hearing Tests. Per reference 18-3, the amount of threshold shift considered to be significant is defined to be 15dB or greater in any frequency 1000 to 4000 Hz in either ear. In addition, a change in hearing of an average of 10dB or more at 2000, 3000 and 4000 Hz in either ear shall be considered a significant threshold shift. Navy recordable STSs shall be reported to the occupational safety and health (OSH) office for entry on the Log of Navy Injuries and Occupational Illnesses. STSs are considered Navy recordable when an audiologist, otologist, or occupational medicine physician confirms the shift is toward deteriorated hearing, is permanent, and is consistent with an occupational origin. In addition, all monitoring results should be reviewed for evidence of an "OSHA recordable" STS, which is defined as a 25dB average change toward poorer hearing at 2000, 3000, and 4000 Hz. Finally, the individual and his or her supervisor shall be notified of either event per 18-2 and 18-3. (See chapter 14 paragraph 1409 for additional details)."

e. Termination Hearing Test. Military personnel shall receive a hearing test upon termination of Navy service. Civilian personnel who have been routinely exposed to hazardous noise or have previously demonstrated a significant threshold shift, shall receive a hearing test upon termination of employment. Additionally, all personnel dropped from the hearing testing program due to removal from hazardous noise duties will have a termination test to document auditory status at the time of reassignment.

1807. Personal Hearing Protective Devices

a. Hearing protective devices shall be worn by all personnel when they enter or work in an area where the operations generate:

- (1) Sound levels greater than 84 dB(A)
- (2) 140 dB peak sound pressure level or greater.

b. A combination of insert type and circumaural types of personal hearing protectors (double protection) shall be worn when sound levels exceed 104 dB(A) unless an occupational audiologists, IH, or occupational medicine physician has determined that single protection is adequate for the anticipated duration of exposure.

c. All personnel exposed to gunfire in a training situation or to artillery or missile firing, under any circumstances, shall wear hearing protective devices.

d. The determination of which hearing protective devices or combination of devices is suitable for use in each situation, is the responsibility of the IH, audiologist, occupational medicine physicians or other competent personnel, under their supervision. Appendix 18-A

contains information on hearing protection devices and selection criteria. Every effort shall be made to issue personal hearing protective devices suited to the location and duration of usage. Personal hearing protective devices should reduce effective sound levels to less than 84 dB(A) or 140 dB peak. Appendix 18-A lists recommended hearing protective devices available through the Navy supply system. The Navy Environmental Health Center (NEHC) website (currently at <http://www-nehc.med.navy.mil>) identifies additional hearing protectors that have been tested by DoD activities, and are approved for open purchase. Activities desiring to use hearing protective devices not specified in appendix 18-A or cited by NEHC shall submit a sample of the device with a request for evaluation to the Chief, Bureau of Medicine and Surgery (BUMED). BUMED will review manufacturers' test data and conduct additional evaluation as necessary to determine suitability for use.

e. In cases where hearing protection devices alone do not provide sufficient attenuation to reduce the employee's effective exposure at or below an 8-hour TWA of 84 dB(A), administrative control of exposure time will be necessary. Appendix 18-B contains a table of noise exposure limits.

f. Personnel may use custom earplugs only if they cannot be properly fitted with approved hearing protectors or if special circumstances require a custom hearing device. Activities shall provide preformed or custom molded musician's earplugs to service band members. Only audiologists, otolaryngologists or trained medical technicians may take impressions of the ear necessary to make custom earplugs.

1808. Training

a. Personnel identified for inclusion in the hearing conservation program must receive initial and refresher training per appendix 6-A. Initial training will be provided before assignment to duty in a designated noise hazardous area involving exposure to hazardous noise. Refresher training can be given by local medical personnel at the time of the annual audiogram. The cognizant medical activity shall document the training in the medical record with appropriate notification to the OSH office. The activity OSH office shall maintain records of such training per chapter 6.

b. All Navy personnel included in the hearing conservation program shall receive appropriate instruction in:

- (1) The elements of and rationale for a hearing conservation program
- (2) Proper wearing and maintenance of hearing protection devices
- (3) The command program and individual responsibilities
- (4) Off-duty practices which will aid in protecting their hearing
- (5) Individuals responsibility in protecting their own hearing

(6) How hearing loss affects employability, retention, job performance and career progression.

c. Activities shall provide instruction to all personnel upon reassignment to a new job that is noise hazardous.

1809. Recordkeeping

a. Activities shall record results of hearing tests performed for hearing conservation purposes, as well as exposure documentation, and these records shall become a permanent part of an employee's health record. The medical department shall retain the original reference audiogram as a permanent part of an employee's health record along with all disposition results and referral notations. The medical department shall record all hearing test results on DD 2215, *Reference Audiogram*, or DD 2216, *Hearing Conservation Data*, as appropriate. The medical department shall place the original in the health record and upload a digitized copy to the Defense Occupational Environment and Health Readiness System-Hearing Conservation (DOEHRs-HC) data warehouse. Those few medical departments that do not have DOEHRs equipment should contact NEHC for guidance. NEHC will no longer accept hard copy forms.

b. The medical department shall retain all noise measurement data, as well as audiometric records and information in an employee's health record per the provisions of Chapter 8, and record the results of noise exposure assessments in the work location block on the DD 2215s and 2216s.

1810. Noise Abatement Program Introduction.

The primary means of protecting Navy personnel from hazardous noise shall be through the application of engineering controls. Administrative controls (i.e., the adjustment of work schedules to limit exposure) are also effective but often result in some loss in productivity. Personal protective equipment (PPE) (ear plugs, muffs, etc.) shall be the permanent solution only when activities determine engineering or administrative controls infeasible. Chapter 5 discusses general hazard (including noise) control techniques in more detail; therefore, this chapter will address only specific concepts.

1811. Preventive Measures

It is less costly to eliminate potential noise problems in the design or procurement stage for new processes, equipment, and facilities than it is to make retrofits or modifications after the fact. References 18-3 through 18-8 provide guidance to meet this objective.

1812. Abatement of Existing Noise Hazards

a. Abatement Methods. The activity shall undertake the abatement of hazardous noise levels, to the extent possible or practicable, by one or more of the following methods:

(1) By engineering design to eliminate or reduce the noise levels of machinery, equipment and other operating devices/facilities to acceptable levels

(2) By damping the noise by means of lamination, mufflers, mountings, couplings, supports, insulation or application of acoustic materials

(3) By acoustical enclosure of the noise producer

(4) By isolation of the noise producer to a point where the noise will affect fewer personnel

(5) By substitution of a less hazardous process

(6) By administrative controls which limit exposure (i.e., control of work schedules).

b. Engineering control feasibility studies. Activities shall initiate studies for those areas where continuous noise levels exceed 100 dB(A) and personnel are exposed for 4 hours or more even though protected by hearing protective devices. Only when activities determine that the methods outlined above are infeasible shall they consider the utilization of personal hearing protective devices a permanent means of control. Activities shall support such determinations by appropriate documentation signed by the cognizant IH and the cognizant engineer and maintain records of such determinations. See chapter 1 for a discussion of exceptions for military unique equipment and operations.

1813. Responsibilities

The Navy assigns the following responsibilities to provide sound and effective occupational noise control and hearing conservation throughout the Navy.

a. The Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Centrally manage the hearing conservation program and periodically update the program to maintain currency and effectiveness.

(2) Provide audiometric support to all military and civilian personnel.

(3) Provide subject matter expertise and technical review, and provide/document refresher hearing conservation training in conjunction with the annual audiogram.

(4) Provide appropriate professional and technical hearing conservation guidance and assistance to the Chief of Naval Education and Training (CNET).

(5) Develop guidelines and issue certification for:

(a) Personnel conducting sound level measurements

(b) Personnel performing hearing conservation audiometry

(c) Audiometric test chambers

(d) Audiometers

(6) Establish and maintain a hearing conservation database to measure program effectiveness and use prevalence of hearing loss to provide input to noise control engineering decisions.

(7) Support a research and development effort in the medical aspects of hearing conservation.

(8) Provide assistance in the identification and quantification of noise hazard sources.

b. Headquarters Commanders shall:

(1) In coordination with BUMED, provide technical assistance and engineering guidance to subordinate commands per section 1810.

(2) Consider, design, and engineer noise control features into all (both existing and future) ships and aircraft, weapons and weapon systems, equipment, materials, supplies and facilities.

(3) Provide appropriate technical and engineering control methodology guidance and assistance to CNET.

c. Commanding Officers for shore activities shall ensure that:

(1) All Navy areas, worksites, and equipment under their cognizance, identified as noise hazardous are labeled and where necessary, suitably trained personnel shall conduct surveys and assessments.

(2) Activities institute a hearing conservation program where a potential noise hazard has been identified per section 1804 and maintain a roster of personnel placed in the program.

(3) Activities, in cooperation with the cognizant medical treatment facility, annually evaluate hearing conservation program effectiveness as specified in 18-2.

(4) Activities eliminate or reduce hazardous noise levels through the use of engineering controls.

(5) Activities provide personal hearing protective devices, and ensure proper usage by personnel where administrative or engineering controls are infeasible or ineffective.

(6) All military and civilian personnel, whose duties entail exposure to potentially hazardous noise, receive instruction per this chapter.

(7) Emphasis is placed upon leadership by example regarding the wearing of hearing protective devices. Activities shall enforce policy, including the initiation of disciplinary measures for repeated failure to comply with the requirements of the hearing conservation program.

Chapter 18

References

- 18-1. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety & Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)
- 18-2. DODI 6055.12 of 22 Apr 96 Hearing Conservation Program
- 18-3. NEHC Technical Manual TM 6260.51.99-1 of May 99, Navy Medical Department Hearing Conservation Program Procedures
- 18-4. NAVFAC P-970 of 15 Jun 78, Environmental Protection Planning in the Noise Environment
- 18-5. MIL HDBK-1008 (C) of 10 June 1997, Fire Protection for Facilities for Engineering Design and Construction (NOTAL)
- 18-6. Army TM-5-805-4 of May 95, Noise and Vibration Control
- 18-7. NIOSH Pub. No. 79-117, Industrial Noise Control, latest edition, (NOTAL)
- 18-8. MIL-STD-1472F, Human Engineering Design Criteria for Military Systems, Equipment and Facilities, latest edition, (NOTAL)

Appendix 18-A
Hearing Protective Devices

Manufacturer's Nomenclature/NSN	Type of Protector	Federal Nomenclature
Ear Defender V-51R 6515-00-442-4765 6515-00-467-0085 6515-00-467-0089 6515-00-442-4807 6515-00-442-4813	Insert Earplug (sized) 24's (sized) 24's (sized) 24's (sized) 24's (sized) 24's	Plug, Ear, Noise Protection (X-Small) (White) (Small) (Green) (Medium) (Int'l Orange) (Large) (Blue) (X-Large) (Red)
Comfit, Triple Flange 6515-00-467-0092 6515-00-442-4818 6515-00-442-4821	Insert Earplug (sized) 24's (sized) 24's (sized) 24's	Plug, Ear, Noise Protection (Large) (Blue) (Regular) (Orange) (Small) (Green)
Silaflex (Blister Pack) 6515-00-133-5416	Non-Hardening Silicone	Plug, Ear, Noise Protection Cylindrical, Disposable 200's
EAR or Deci-Damp 6515-00-137-6345	Foam Plastic Insert	Plug, Ear, Noise Protection Universal Size, Yellow 200 pr
Straightaway Muffs 4240-00-759-3290 4240-00-674-5379 4240-00-979-4040	High Performance Circumaural Muffs For 9 AN/2 For 9 AN/2	Aural Protector Sound 372-9 AN/w Replacement Filter, Dome Replacement Seal, Dome
Ear Plug Cases 6515-01-212-9452 6515-01-100-1674	Non-reflective	Case, Earplug 12's Case, Earplug 20's
Sound-Ban 6515-00-392-0726	Headband, Earcaps	Plug, Ear, Hearing Protection, Universal Size
Circumaural Muff 4240-99-691-5617	Type I Overhead Headband	Aural Protector, Sound
Circumaural Muff 4240-00-022-2946	Type II Napeband (for use with hard hat)	Aural Protector, Sound

POSITIVE AND NEGATIVE FEATURES OF HEARING PROTECTION DEVICES

Type	Positive	Negative	Duration
<u>Insert</u> V-1R Triple Flange	After adaptation can be used for long periods. Relatively inexpensive.	Individual fittings by medical personnel required. Frequent fitting causes irritation.	Long-term (3 - 4 hours)
<u>Disposable</u> Silaflex, EAR or Deci-Damp	Comfortable. Individual fitting not required. Relatively inexpensive	Molded by hand. Easily Soiled. Difficult to clean.	Infrequent use. Transitory noise exposure.
<u>Circumaural</u> <u>Muffs</u> Type I and II 372-9 and AN/2	May be worn over plugs. Most efficient universal device.	Expensive. Heavy. Difficult to carry. Hair or eyeglasses may reduce effective ness.	Long or short term

One single type of hearing protective device will not meet the needs of all personnel in a hearing conservation program. Activities shall select the appropriate type of hearing protection device based upon a consideration of the factors listed above in addition to the degree of attenuation required in a particular situation. The most convenient method of making this determination is the Noise Reduction Rating (NRR) developed by the Environmental Protection Agency (EPA). The NRR is usually shown on the hearing protector package. The NRR is then related to an individual worker's noise environment in order to assess the adequacy of the attenuation of a given hearing protector.

Since there are a wide variety of noise measuring instruments in use, personnel conducting sound level measurements shall use one of the following methods. In each case, they should take a sufficient number of measurements to achieve a representative noise sample.

a. When using a dosimeter that is capable of C-weighted measurements:

(1) Obtain the C-weighted dose for the entire work shift, and convert to TWA sound level (see dosimeter instruction manual for conversion table).

(2) Subtract the NRR from the C-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

b. When using a dosimeter that is not capable of C-weighted measurements, the following method may be used:

(1) Convert the A-weighted dose to TWA (see dosimeter instruction manual)

(2) Subtract 7 dB from the NRR value.

(3) Subtract the remainder from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

c. When using a sound level meter set to the A-weighting network:

(1) Obtain the A-weighted TWA.

(2) Subtract 7 dB from the NRR and subtract the remainder from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.

d. When using a sound level meter set on the C-weighting network:

(1) Obtain a representative sample of the C-weighted sound levels in the environment.

(2) Subtract the NRR from the C-weighted average sound level to obtain the estimated A-weighted TWA under the ear protector.

This manual considers the effectiveness of any combination of insert plugs with circumaural muffs (double protection) to be at least 30 dB. If an activity determines the result of subtracting the estimated reduction value of a particular device or combination of devices from the measured workplace sound level is at or below 84 dB(A), the protection is adequate. However, should the value exceed 84 dB(A) or 140 dB peak, activities shall institute administrative controls to reduce personnel exposure to acceptable levels.

Appendix 18-B
Administrative Control of Noise Exposure
with Hearing Protective Devices
(Stay Time)

Limiting time (hr:min per 24 hour day)

<u>Sound Level</u> <u>(dB(*))</u>	<u>Hearing Protector Noise Reduction (dB)</u>			
	<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>
90	16	--	--	--
94	8	--	--	--
98	4	--	--	--
102	2	11:18	--	--
106	1	5:39	--	--
110	0:30	2:49	16	--
114	0:15	1:25	8	--
118	—	0:42	4	--
122	—	0:21	2	11:18
126	—	—	1	5:39
130	—	—	0:30	2:49
134	—	—	0:15	1:25
138	—	—	—	0:42

NOTE: Values other than those given above may be calculated using the formula:

$$T = \frac{16}{2^{\left[\frac{L-80}{4}\right]}}$$

Where: T = time in hours (decimal)
L = effective sound level in dB(A)

* - Sound levels may be measured in either dB (A) or dB (C). However, as noted in Appendix 18-A, if dB (A) is used, the NRR must be reduced by 7 dB.

Intermediate values may be interpolated by adding or subtracting the decibel difference to the appropriate column.

CHAPTER 19

SIGHT CONSERVATION

1901. Discussion

All Navy activities with personnel having exposure to eye hazardous operations shall implement a sight conservation program per the guidance established in this chapter and chapter 20. The activity sight conservation program shall include, but not be limited to, the following program elements:

- a. Identification and evaluation of eye hazardous areas, processes and occupations
- b. Prescription protection eyewear program
- c. Provision and maintenance of appropriate personal protective equipment (PPE) at government expense
- d. An employee training, promotion and emphasis program
- e. Effective program enforcement.

1902. Basic Program Requirements

a. Emergency Eyewash Facilities. Activities shall provide emergency eyewash facilities meeting the requirements of reference 19-1 in all areas where the employees' eyes may be exposed to corrosive materials. All such emergency facilities shall be located where they are easily accessible to those in need. Work centers shall activate plumbed eyewash units – weekly for a minimum of 3 minutes to flush the line and verify operation. Quarterly verification, typically by the safety office is recommended. Activation may be required more frequently if the activity's safety and/or occupational health staff determine it is necessary to ensure proper functioning and performance of the eyewash station.

Activities shall service pressurized and non-pressurized self-contained eyewash units quarterly or per the manufacturer's recommendations, whichever is more frequent. Quarterly maintenance shall include cleaning of the unit, replacement of water, and checking for proper operation. Where an additive is used in a self-contained eyewash unit, activities shall use additives specified by the manufacturer, and change fluid at an interval recommended by the manufacturer of the additive. Work centers shall maintain written, dated and signed maintenance records.

Activities shall only use self-contained eyewash units on a temporary basis until permanent emergency eyewash facilities are installed or at remote locations where water is not readily available. Activities shall not use personal eyewash units.

1903. Occupational Eye Care Services and Equipment

The activity OSH office shall consult with supply officers and the cognizant medical activity to determine the most suitable procurement procedures when prescription protective eyewear is

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required. When Navy medicine provides these services, all medical forms and evaluations must be documented according to the Bureau of Medicine and Surgery Manual of Medical Department, NAVMED P117.

1904. Temporary Protective Eyewear

Where protective corrective eyewear is necessary, activities shall provide planos or goggles to visitors, instructors and others who must enter or pass through eye hazardous areas. In addition, they shall be provided to employees awaiting delivery of corrective-protective eyewear.

Chapter 19

References

19-1. American National Standards Institute (ANSI) Standard Z358.1-1998, Emergency Eyewash and Shower Equipment, (NOTAL)

CHAPTER 20

PERSONAL PROTECTIVE EQUIPMENT

2001. Discussion and Policy

a. The best means of protecting personnel from hazard exposure in the workplace is to eliminate the hazard. When this is not possible, engineering controls shall be the method of choice to eliminate or minimize hazard exposure in the workplace. When neither of these methods can be employed, activities shall implement a personal protective equipment (PPE) program to reduce or eliminate personnel exposure to hazards.

b. Navy policy is that activities provide, use and maintain PPE when competent authority determines that its use is necessary and that such use will lessen the likelihood of occupational injuries and/or illnesses. Activities shall provide necessary protective equipment where there is a reasonable probability that the use of the equipment will prevent or reduce the severity of injuries or illnesses. PPE procurement and enforcement of proper use and maintenance is the responsibility of the activity.

c. Activities must recognize that personal protective devices do nothing to reduce or eliminate the hazard itself. They merely establish a last line of defense, and any equipment breakdown, failure or misuse immediately exposes the worker to the hazard. Many protective devices, through misapplication or improper maintenance, can become ineffective without the knowledge of the wearer and can have potentially serious consequences. For this reason, proper equipment selection, maintenance, employee training (including equipment limitations) and mandatory enforcement of equipment use are key elements of an effective PPE program.

2002. Basic Program Requirements

Each activity shall ensure that an assessment of all workplaces is conducted to determine if hazards are present that necessitate the use of PPE. If such hazards are present, or likely to be present, activities shall accomplish the following actions:

a. Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment.

b. Communicate selection decisions to each affected employee.

c. Document that the required workplace hazard assessment has taken place with a written certification, identifying the workplace evaluated, the person performing the evaluation and the date(s) of the hazard assessment. Activities shall retain this document as proof of hazard assessment.

NOTE:

Reference 20-1 contains an example of procedures that would comply with the requirement for a hazard assessment.

2003. Equipment Specifications and Requirements

All personal protective clothing and equipment shall be of safe design and construction for the work to be performed. Federal agencies and standards organizations have developed standards and specifications for the design and use of PPE and devices. Activities shall only use those items that have been recognized and approved. This approval can be met through the use of:

- a. Federal specifications
- b. American National Standards Institute (ANSI) specifications
- c. Recognized approval authority, such as Underwriter's Laboratories (UL), Factory Mutual (FM), or American Society of Testing and Materials (ASTM).

2004. Eye and Face Protection

Employees shall wear approved eye and face protection when there is a reasonable probability that wearing such equipment will prevent injury. They shall use eye protection at all times in a designated eye hazard area. Flying particles and chips; splashes from liquids such as acids, caustics and solvents; and operations that generate hot slag or molten metal, welding glare, etc., can cause eye and/or face injury. The activity shall provide the required approved protective equipment and enforce usage. Reference 20-2 provides the requirements for design, construction, testing and use of devices for eye and face protection. Chapter 19 of this manual contains additional information on the Navy Occupational Safety and Health (NAVOSH) sight conservation program.

2005. Hearing Protection

See chapter 18 for hearing protection requirements.

2006. Respiratory Protection

See chapter 15 for respiratory protection requirements.

2007. Head Protection

Helmets and hats for the protection of Navy employees from the impact of falling and flying objects and from limited electric shock and burn shall meet the specifications of reference 20-3. Employees shall wear head protection at all times in a designated hardhat area.

2008. Foot Protection

- a. Foot Hazardous Operations. Foot and toe hazardous operations are those that have a high incidence of, or potential for, foot or toe injuries. Examples of trades or ratings generally associated with foot or toe hazardous operations are construction, materials handling, maintenance, transportation, ship repair and operation, aircraft overhaul and repair and explosives manufacturing and handling. Employees shall wear foot and toe protection at all times in a designated foot hazard area.

b. Foot Protective Devices

(1) Safety shoes, with a built-in protective toe box, primarily provide protection from heavy falling objects. These shoes shall conform to the requirements of reference 20-4, and be appropriately labeled per reference 20-4. General-purpose safety shoes (Chukka style) are available through normal supply channels. In cases where standard stock general-purpose safety shoes do not properly fit the employee, the Navy authorizes procurement from commercial sources.

(2) Employees shall wear the following special-purpose safety footwear, furnished for special hazards:

(a) Semi-conductive safety shoes are used to dissipate static electricity. To be effective, employees must use the shoes on conductive surfaces, such as wet concrete, metal decks, carbon-impregnated surfaces, wet terrain, conductive linoleum and conductive tiles. These brown shoes shall conform to Specification CID-A-A-50359 (Shoe, Conductive Series). This shoe was formerly procured under MIL-B-3794.

(b) Molder's "Congress" style safety shoes for protection while handling molten metal. The design prevents hazardous materials from falling inside the shoes and also allows quick removal of the shoes from feet, if necessary, to minimize injury. (MIL-S-82245, Shoe, Molders).

(c) Electrical hazard safety shoes, with a built-in protective toe box, to guard against electrical shock hazards when performing electrical work on live circuits not exceeding 600 volts. Employees should note, however, that these shoes only provide partial protection and should not ignore additional protective measures normally employed in these environments, (i.e., all personnel working on energized circuits shall insulate themselves from the ground (MIL-S-43860 Shoes, Electrical Hazards Protective).

(3) Safety boots are general-purpose footwear items offering the same toe protection as the above safety shoes except in a boot designed for added support. The Navy does not approve these boots for use in areas where hazardous chemicals are used. (MIL-B-87067, Boot, Safety Series).

c. Appropriation and Distribution. The following procedures apply to the issue of protective footwear for military and civilian employees.

(1) Activities shall provide military personnel with standard stock safety shoes when required by their work. When safety shoes exhibit wear, such that safety protection is no longer afforded, the command shall provide standard stock safety shoes as organizational clothing (similar to coveralls or foul weather gear).

(2) The primary method for providing safety shoes to civilians is: issue of standard stock or reimbursement to individuals who buy their own shoes. A secondary method is to issue safety shoes that activities obtain under a local purchasing contract. Activities may select the method best suited to local conditions. Activities must absorb the cost of safety shoes within local operating funds (Defense Capital Working Fund (DCWF), research development, test, and evaluation

(RDT&E), operation and maintenance, Navy (O&M,N). Activities purchasing safety shoes under either local reimbursement or local contracting procedures shall ensure that they are appropriately labeled, and meet the requirements of reference 20-4. Activities shall determine the amount of the reimbursement by taking into consideration the usual cost in the local area for shoes of the type and quality specified in paragraph 2008b. Activities must document cases where medical considerations require specialized safety shoes (orthopedic safety shoes) with a written statement from a physician who treats foot disorders.

(a) Activities shall provide Navy U.S. civilian employees overseas (including foreign nationals) with safety shoes, as required, from standard stocks, unless their cognizant headquarters command grants specific approval for alternate purchasing methods. Foreign national indirect hires, being provided safety shoes under an existing labor agreement, will continue to use the reimbursement procedures contained in the applicable agreement.

(b) Activities shall provide non-appropriated funded civilian employees with safety shoes under provisions of this policy except that the funding and paying sources for required safety shoes will be non-appropriated.

2009. Hand Protection

a. Activities shall select, provide and require appropriate hand protection whenever employees' hands are exposed to, or are likely to be exposed to, such hazards as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasion; punctures; chemical irritants; thermal burns; and harmful temperature extremes.

b. Activities shall base selection of hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use and the hazards and potential hazards identified.

2010. Electrical Protective Devices

Navy activities shall provide appropriate rubber protective equipment for electrical workers who perform work on energized or potentially energized electrical systems. Equipment shall conform to references:

American Society for Testing and Materials (ASTM) D 120-87, Specifications for Rubber Insulating Gloves

ASTM D 178-88, Specification for Rubber Insulating Matting

ASTM D 1048-88, Specification for Rubber Insulating Blankets

ASTM D 1049-88, Specification for Rubber Insulating Covers

ASTM D 1050-90, Specification for Rubber Insulating Line Hose

ASTM D 1051-87, Specification for Rubber Insulating Sleeves.

2011. Training

a. Activities shall provide training to each employee who is required to use PPE to include at least the following:

- (1) When PPE is necessary.
- (2) What PPE is necessary.
- (3) How to properly don, doff, adjust and wear PPE.
- (4) The limitations of the PPE.
- (5) The proper care, maintenance, useful life and disposal of the PPE.
- (6) Ability to recognize that defective or damaged PPE shall not be used.

b. Each affected employee shall demonstrate an understanding of the training specified in paragraph 2011a, and the ability to use PPE properly before being allowed to perform work requiring the use of PPE.

c. When a supervisor has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by paragraph 2011b above, the supervisor shall ensure retraining is accomplished for each such employee. Circumstances where retraining is required include, but are not limited to, situations where:

- (1) Changes in the workplace render previous training obsolete
- (2) Changes in the types of PPE to be used render previous training obsolete
- (3) Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

d. Activities shall maintain documentation verifying that each affected employee has received and understands the required training. Documentation shall be in accordance with paragraph 0605 of chapter 6.

2012. Responsibilities

Commanders, Commanding Officers, and Officers in Charge shall include and enforce the following provisions concerning PPE:

a. Ensure the evaluation of workplaces, including applicable hazardous material data and industrial hygiene survey reports, to determine PPE requirements. Qualified safety and occupational health personnel shall perform these evaluations. Commands shall use the results of these evaluations to designate appropriate work conditions and work areas as requiring PPE. The command shall establish effective means of communicating these PPE requirements to employees.

- b. Ensure that PPE conforms to NAVOSH standards.
 - c. Arrange for appropriate medical evaluations to determine worker capability to perform assigned tasks using the prescribed PPE.
 - d. Train personnel in the selection, use, inspection and care of PPE required for their work situations and maintain records of such training.
 - e. Ensure protective equipment worn by personnel fits properly.
 - f. Ensure designated personnel perform periodic equipment inspection, cleaning, disinfection and maintenance.
 - g. Provide proper equipment storage to protect against environmental conditions that might degrade the effectiveness of the equipment or result in contamination during storage.
 - h. Ensure compliance with the prescribed use of PPE.
 - i. Identify non-use, misuse or malfunction of PPE that results, or may result, in injury or occupational illness to Navy personnel.
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Chapter 20

References

- 20-1. Title 29 Code of Federal Regulations (CFR) 1910 Subpart I, Appendix B, Non-mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment, latest revision, (NOTAL)
- 20-2. American National Standards Institute (ANSI) Z87.1-1989 (R-1998), American National Standard Practice for Occupational and Educational Eye and Face Protection, (NOTAL)
- 20-3. American National Standards Institute (ANSI) Z89.1-1997, American National Standard for Industrial Head Protection, (NOTAL)
- 20-4. American National Standards Institute (ANSI) Z41-1999, American National Standard for Personal Protection-Protective Footwear, (NOTAL)

CHAPTER 21

LEAD

2101. Applicability

a. The provisions of this chapter apply to industrial and construction work and supplement references 21-1 and 21-2.

(1) Construction work covered by reference 21-2, includes any repair or renovation activities or other activities that disturb in place lead-containing materials (LCM) (e.g., steel structure renovation and repair), but does not include routine cleaning and repainting (e.g., minor surface preparation and repainting of rental apartments between tenants or at scheduled intervals) where there is insignificant damage, wear or corrosion of existing lead-containing paint, coatings or substrates.

(2) Employees performing maintenance activities not associated with construction work are covered by the general industry standard for lead, reference 21-1. Maintenance activities covered by the general industry standard are those that involve making or keeping a structure, fixture, or foundation in proper condition in a routine, scheduled or anticipated fashion.

2102. Discussion

a. The goal of this chapter is to prevent lead intoxication and related injuries during the use, handling, removal and melting of materials containing lead at Navy activities.

b. Lead, as used in this chapter, means metallic lead, all inorganic lead compounds and organic lead soaps. All other organic lead compounds are excluded. Lead's abundance, low melting point, high molecular weight, high density and malleability make it a useful structural material. When added to resins, grease, or rubber, lead compounds act as antioxidants. Common uses for lead and lead compounds include:

- (1) Ballast
- (2) Radiation shielding
- (3) Paint filler and hardener
- (4) Rubber antioxidant
- (5) An acoustical insulation component
- (6) Solder for electrical components and pipe joints
- (7) High voltage cable shielding
- (8) Small arms ammunition
- (9) Batteries

(10) Roof flashing

(11) Weights

While not an absolute indicator, red, forest green, chrome yellow, "school bus yellow", and "Occupational Safety and Health (OSH) yellow" paints typically contain lead components, such as lead oxides and lead chromate. Lead is also found in polyurethane and water base paints.

c. Significant lead exposures can occur during:

(1) Lead and babbitt melting and casting

(2) Ballast handling

(3) Spraying, sanding, grinding, burning, welding and abrasive blasting of lead containing materials and paint

(4) Soldering with torches

(5) High voltage cable repair

(6) Abrasive blasting with smelting slag

(7) Lead-acid battery reclaiming

(8) Machining lead

(9) Handling of contaminated personnel clothing, etc.

(10) Bullet trap clean-out/general cleaning at firing ranges

d. Lead has long been a recognized health hazard. Lead can damage the nervous system, kidneys and reproductive systems. Chronic lead exposure can initially damage the blood forming organs. Higher levels can result in reproductive dysfunction in both men and women, and it can cause peripheral nerve and central nervous system changes. Lead inhibits heme synthesis and at high levels leads to anemia. Lead can pass through the placenta and lead levels in the mother's blood are comparable to concentrations of lead in the umbilical cord at birth. The fetus and newborn may be at least as susceptible to neurological damage as young children.

e. In recognition of the serious health hazards associated with, and the numerous sources of, potential lead exposure, the Navy has established strict controls to limit both occupational and environmental exposures. Navy activities shall apply standards and controls discussed in this chapter to all personnel ashore. Reference 21-3 discusses the lead control program for forces afloat. Work which falls under the OSHA construction standards, i.e., construction, demolition, renovation, or repair of structures, follow the requirements in reference 21-2.

2103. Permissible Exposure Limit (PEL) and Action Level Triggering Requirements

a. PEL. The PEL for an 8-hour time-weighted average (TWA) exposure to airborne lead is 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) of air. For employee exposure of more than 8 hours in a work day, the PEL shall be determined by the following formula.

$$PEL\left(\frac{\mu\text{g}}{\text{m}^3}\right) = \frac{400}{\text{No. Hours Worked Per Day}}$$

Activities shall implement engineering and administrative controls to the extent feasible to reduce the exposure to below the PEL when an employee's exposure exceeds the PEL for more than 30 days per year. Wherever the engineering and work practice controls that activities institute are not sufficient to reduce employee exposure to or below the permissible exposure limit, the employer shall nonetheless use engineering controls to reduce exposure to the lowest feasible level and shall supplement them by use of respiratory protection. Where an employee is exposed to lead above the PEL for 30 days or less per year, activities shall use engineering controls to reduce exposures at least to $200 \mu\text{g}/\text{m}^3$. Thereafter, use any combination of engineering, work practice, and respiratory protection controls to reduce employee exposure to or below $50 \mu\text{g}/\text{m}^3$.

b. Action Level (AL). The AL for an 8-hour TWA exposure to airborne lead is $30 \mu\text{g}/\text{m}^3$ (without regard to respirator use). Exposure to airborne lead at or above the AL, for more than 30 days per year, shall trigger biological monitoring and medical surveillance.

2104. Control of Lead in the Workplace Environment

Chapter 5 discusses the basic principles for controlling hazards in the occupational environment including substitution with less hazardous materials, engineering controls (closed systems, thermostats), administrative controls (job rotation, work time limits), and use of personal protective equipment (PPE), in that order.

a. General Workplace Control Practices.

(1) The Navy shall not use paints containing more than 0.06 percent lead by dry weight unless the cognizant headquarters command specifically approves higher lead content paint.

(2) Before proceeding with work involving paint, the activity must determine if the paint contains sufficient lead to warrant applying lead controls for the work to be performed. This may be accomplished via testing of the paint using a valid laboratory method, or through established and accurate records which provide the needed information (e.g., paint application records coupled with lead content data from material safety data sheets, product labels, prior testing results, or other valid documentation). The cognizant OSH professional or industrial hygienist (IH) shall determine the lead monitoring and controls required for the work. This determination shall be based on the lead content of the involved paints, the work methods to be employed, and observation, calculations, or previous measurements relevant to the employee exposure potential of the work in question.

(3) When feasible, activities shall minimize the heating of lead and leaded materials through the use of thermostatically controlled heating or the removal of lead containing surface coatings or contaminants prior to heating.

(4) Activities shall establish procedures to maintain work surfaces as free of lead dust as is practical and shall clean up lead dust with high efficiency particulate air (HEPA) filtered vacuum cleaners. They may only use wet sweeping and brushing when vacuuming or other equally effective methods have been tried and found to be ineffective or infeasible. Activities shall not use compressed air to clean work surfaces or work floors.

(5) Activities that have lead containing waste, scrap, debris, containers, equipment, and clothing consigned for disposal shall collect it, seal it in impermeable containers, and label waste per paragraph 2105.

(6) To minimize exposure potential, activities shall isolate hot work on lead and abrasive lead removal operations to the extent feasible, from other operations.

b. Ventilation. Local exhaust ventilation is frequently required to ensure that atmospheric levels of lead particulate do not exceed the PEL. The list below contains general requirements for the design and use of ventilation to reduce exposures. The cognizant industrial hygienist shall provide specific guidance for each lead operation.

(1) The cognizant industrial hygienist shall provide recommendations regarding specific equipment design parameters and system servicing procedures for each operation.

(2) Activities shall design, construct and maintain local exhaust ventilation and dust collection systems per references 21-4 through 21-7.

(3) Activities shall test ventilation systems used to control lead exposures or emissions using qualified engineering or industrial hygiene personnel at least every 3 months and within 5 days of any production, process, or control change which may result in a change in employee exposure. Where devices such as manometers, pitot tubes, etc. are installed to continuously monitor the effectiveness of ventilation systems, activities shall instruct employees who use the system on the meaning and importance of the measurements and to immediately contact their OSH office if the measuring devices indicate a malfunction. Where such devices are in place, industrial hygiene or engineering personnel only need to inspect the ventilation systems annually.

(4) Activities using ventilation systems to control occupational exposures or emissions shall not directly exhaust into any work-space or to the atmosphere. They shall not re-circulate air from operations generating lead. The activity environmental manager shall approve the air pollution control system after consulting with the cognizant air pollution regulatory agency.

(5) The industrial hygienist shall review the ventilation design for ease of maintenance and accessibility, as well as design errors, and shall pay special attention to hoods, duct work, clean out hatches, exhaust fans and air pollution control devices. Activities shall install the exhaust fan, after the air pollution control system, in a protected and restricted room or shed. If a HEPA filter is required and the filter and pre-filter housing is located outdoors, they shall use a bag-in, bag-out style access housing.

c. Personal Protective Clothing and Related Control Facilities

(1) Personnel engaged in operations where the concentration of airborne lead particulates is likely to exceed the PEL or where the possibility of skin or eye irritation exists, shall remove clothing worn to and from work and wear the protective clothing provided by the Navy. Employees shall use waterproof clothing when handling wet lead. Protective clothing includes:

(a) Full body, one-piece coveralls shall be used.

(b) Personnel shall use durable gloves and head covering. Hoods shall extend beyond the collar of the coverall, completely protecting the neck area.

(c) Activities shall provide slip-resistant shoe covers or lightweight rubber boots and may also use disposable shoe covers.

(d) Activities shall provide face shields, vented goggles, or other appropriate protective equipment for use whenever the possibility of eye hazard exists.

NOTES:

The proper use of protective clothing requires that employees close all openings and that garments fit snugly about the neck, wrists and ankles. Accordingly, employees shall tape the wrist and ankle junctions, as well as the collar opening on coveralls as necessary, to prevent contamination of skin and underclothing without restricting physical movement.

(2) Activities shall provide clean protective clothing at least weekly. Clean protective clothing shall be provided daily when the 8-hour TWA airborne concentration exceeds 200 $\mu\text{g}/\text{m}^3$.

(3) Activities shall provide change rooms as close as practical to the lead work area(s) for employees who work where the airborne lead exposure is above the PEL (without regard to the use of respirators). They shall maintain change rooms under positive pressure with respect to adjacent lead work areas. They shall post protective clothing removal procedures in the change room and include vacuuming of clothing (before removal and while still wearing a respirator, if one was required for the task) using a HEPA filter vacuum. Removal of lead particles from clothing by blowing or shaking is prohibited.

(4) Employees exposed to airborne lead concentrations above the PEL (without regard to respirator use) shall shower at the end of the work shift prior to entering the clean change room. Activities shall provide clean change rooms incorporating showers within or adjacent to them for employees who work in areas where their airborne exposure to lead is above the PEL. Change rooms shall have two separate clothing lockers for each employee to prevent contamination of street clothes and to ensure that employees do not leave wearing any clothing or equipment worn during their work shift. Supervisors shall ensure that employees shower at the end of their work shift.

(5) Employees shall not take lead contaminated clothing home to be laundered. Activities shall launder lead- contaminated clothing in a manner to prevent release of lead dust in

excess of the AL. Contracts governing laundering of lead-contaminated clothing shall specifically require that contractors comply with the precautions specified in reference 21-1.

(6) Activities shall transport lead- contaminated clothing in sealed containers to which are affixed the standard "caution label" (see paragraph 2104e). Activities shall notify persons who clean or launder protective clothing or equipment in writing of the potentially harmful effects of exposure to lead.

d. Respiratory Protection

(1) Limits of Respirator Usage

(a) Activities shall use engineering control measures per paragraph 2104 and shall not achieve compliance with PELs solely by the use of respirators except under the following conditions:

1. During the time period necessary to implement engineering control measures

2. In work situations in which the control methods prescribed are not technically feasible or are not sufficient to reduce the airborne concentration of lead particulates below the PEL

3. During emergencies.

(b) Where respirators are required to control exposure to lead, activities shall select respirators per appendix 21-A, and comply with the respirator program per chapter 15 of this manual and reference 21-8.

(c) Activities shall supply a powered air purifying respirator with a HEPA filter in lieu of a half or full-face piece respirator, if the employee chooses to use this respirator and it provides adequate protection.

(d) Activities shall provide a respirator to employees who work with lead, upon request, and shall enter the employee into the respiratory protection program.

e. Warning Signs and Caution Labels

(1) Activities shall provide and display warning signs at each location where airborne lead concentrations may exceed the PEL. Activities shall conspicuously post signs so personnel may read them and take necessary precautions before entering the area. They shall clean and illuminate signs required by this paragraph as necessary so that the legend is readily visible. Signs, in compliance with reference 21-1, may contain a listing of required protective equipment and shall state, as a minimum, the following:

WARNING
LEAD WORK AREA
POISON
NO SMOKING, EATING OR DRINKING

(2) Activities shall affix caution labels to containers of contaminated clothing, equipment, raw materials, waste, debris, or other products containing lead if, in any foreseeable way, these products could produce levels of airborne lead which might constitute a threat to health. These caution labels shall state:

CAUTION
CLOTHING CONTAMINATED WITH LEAD
DO NOT REMOVE DUST BY BLOWING OR SHAKING
DISPOSE OF LEAD-CONTAMINATED
WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL,
STATE OR FEDERAL REGULATIONS

f. Lunch Rooms and Personal Hygiene

(1) Activities shall provide lunchroom facilities for employees who work in areas where their airborne lead exposure is above the PEL (without regard to the use of respirators).

(2) When activities locate lunch facilities adjacent to the lead work area, such facilities shall have a positive pressure, filtered air supply and be readily accessible to employees.

(3) Employees shall remove protective clothing and equipment before entering lunchroom facilities.

(4) Activities shall prohibit eating, drinking, chewing or the use of tobacco products, the application of makeup and storage of food and tobacco products in lead work areas.

(5) Lead workers shall wash their hands and face prior to eating, drinking, using tobacco products or applying cosmetics.

2105. Environmental Protection and Waste Disposal Procedures

a. Navy activities must take care to ensure that measures taken to meet local and national environmental standards are compatible with the requirements of this chapter.

b. Activities shall require, prior to disposing of hazardous lead waste, bagging in heavy duty plastic bags or other impermeable containers and labeling with caution labels described in paragraph 2104e(2). Personnel shall label lead waste containers such as bags, trash cans, dumpsters, etc., "LEAD WASTE ONLY" and exercise care to prevent bags and other containers

from rupturing when being moved to a dumpster or other suitable vehicle for transport to a hazardous waste disposal site.

c. Activities shall dispose of lead containing materials per applicable Federal, State and local environmental requirements. The cognizant environmental manager shall determine environmental requirements relating to lead emissions/disposal.

d. Technical assistance for air pollution control is available upon request from the Naval Facilities Engineering Command (COMNAVFACENGCOM) Engineering Field Divisions (EFDs).

2106. Training

All Navy personnel who work in areas where the potential exists for lead exposure at or above the action level, or for whom the possibility of skin or eye irritation exists shall receive initial training prior to or at time of assignment and at least annually thereafter. The training, per reference 21-1, shall include, as a minimum, the following:

- a. The specific nature of the operations during which exposure is possible
- b. The purpose, proper selection, fit testing, use, and limitations of respirators
- c. The adverse health effects of lead with particular attention to the reproductive effects upon both males and females
- d. The purpose and description of the medical surveillance program, including the use of chelating agents and medical removal protection benefits
- e. The engineering controls and work practices to be applied and used in the employee's job, including PPE and personal hygiene measures
- f. The contents of the command's compliance plan.

NOTE:

All employees in a workplace in which there is a potential for exposure to airborne lead at any level shall be informed of the contents of appendices A and B of reference 21-1, and to any related documents, all of which are available at no charge from the Department of Labor (DOL). In addition, employees shall receive, upon request, any other handout type materials in use or related to the training program.

2107. Industrial Hygiene Surveillance

An exposure monitoring plan shall be established for any lead operation with the potential to cause employee exposure at or above the action level. Qualified persons will conduct initial and periodic monitoring. Persons qualified to perform exposure monitoring are specified in chapter 8 of this manual. BUMED IHs will conduct exposure assessments as outlined in chapter 8 of this manual.

2108. Employee Notification

Within 5 working days after the receipt of monitoring results, the command shall notify each employee in writing of his/her exposure monitoring results. Whenever the results indicate that the employee was exposed above the PEL, without regard to respirator use, the written statement shall include that fact and a description of the corrective action(s) taken to reduce the individual's exposure.

2109. Medical Surveillance Program

a. General. This program consists of three basic elements:

(1) Pre-placement medical evaluation

(2) Semi-annual blood lead monitoring

(3) Follow-up medical evaluations based on the results of blood lead analysis and physician opinion.

Activities shall include personnel in this program when industrial hygiene surveillance indicates that they perform work or are likely to be in the vicinity of an operation which generates airborne lead concentrations at or above the AL for more than 30 days per year. Examinations may include special purpose histories and physical examinations, and laboratory tests designed to detect early signs of lead over-absorption. Refer also to reference 21-9 for medical protocols and guidance. Activities shall base inclusion into this program on airborne concentration measurements without regard to respirator use and, therefore, inclusion does not indicate that an individual is overexposed to lead.

b. Program Elements

(1) Pre-placement Evaluation. All Navy personnel shall receive a pre-placement evaluation as described in reference 21-9 prior to assignment to a position involving potential exposures to lead that equal or exceed the AL.

(2) Blood Lead Levels and Frequency of Monitoring. Navy activities shall make blood lead analysis and zinc protoporphyrin (ZPP) available every 6 months for all personnel who are or may be exposed to lead above the AL for more than 30 days per year. Supporting medical facilities shall perform analysis every 2 months when the blood lead level exceeds 30 µg/100g of whole blood.

(3) Follow-up Medical Surveillance

(a) Individual Reassignment/Medical Removal. An employee shall be reassigned to non-lead work:

1. If an employee's blood lead concentration equals or exceeds 60 µg/100g

2. If the average of his/her last three blood lead measurements equals or exceeds 50 µg/100g; however, Individuals need not be removed if their last blood test indicates a blood lead level at or below 40 µg/100 g.

3. Or, if the employee has signs or symptoms of lead toxicity.

For additional guidance concerning removal procedures, return to former job status, and removal protection requirements, refer to reference 21-1. Activities shall also reassign pregnant women exposed to lead at or above 50 µg/m³ or with a blood lead level of 30 µg/100g blood to a job without lead exposure, with medical removal benefits.

(b) Follow-up Blood Lead Monitoring. Activities shall perform follow-up lead monitoring within 2 weeks of the receipt of an initial or routine monitoring result with a blood lead concentration at or above 30 µg/100g of whole blood, and periodically thereafter according to the following criteria.

1. During medical removal (to non-lead work activity), activities shall monitor the employee's blood lead concentration monthly until the employee's last two consecutive test results are at or below 40 µg/100g, at which time the employee may be returned to his/her regular work activity.

2. When an employee's blood lead concentration is between 30 and 40 µg/100g, the activity shall monitor it every 2 months until the last two consecutive blood lead test results are less than 30 µg/100g.

(c) Follow-up Evaluations

1. Medical Follow-up. Activities shall conduct a medical evaluation identical to the pre-placement evaluation, with the exception of chest x-rays, annually for each person found to have a blood lead concentration at or above 30 µg/100g at any time during the prior year.

2. Reassignment Termination of Employment Follow-up. Activities shall conduct a medical evaluation identical to the pre-placement evaluation just prior to the reassignment or termination of an employee from a job requiring medical surveillance.

3. Physicians Written Opinion. Reference 21-1 requires a written opinion and reference 21-9 provides a sample written opinion.

4. Industrial Hygiene Follow-up Investigation. The cognizant industrial hygienist shall be notified of, and perform an investigation to determine the cause of, each blood lead concentration at or above 30 µg/100g which has been verified by follow-up blood lead monitoring.

(d) Other Appropriate Medical Evaluations. The cognizant medical activity shall perform a medical examination, including those elements of the pre-placement examination, which the physician deems necessary:

1. As soon as possible after notification by an employee that he/she has developed signs or symptoms commonly associated with lead intoxication.

2. As soon as possible after notification that the employee desires medical advice concerning the effects of current or past lead exposure on the ability to procreate a healthy child.

3. As soon as possible after being informed that the employee demonstrates difficulty breathing during a respirator fit test or during respirator use.

4. As medically appropriate for personnel who have been removed from exposure to lead due to risk of sustaining material impairment to health, or otherwise limited pending a final medical evaluation.

c. Administrative Procedures

(1) Employee Notification. An activity shall notify the employee of the following, in writing, within 5 working days after receipt of results, when his/her blood lead level is at or above 30 µg/100g whole blood:

(a) His/her blood lead concentration level, as reported

(b) That the regulations require temporary medical removal with Medical Remove Protection benefits when, and if, the employee's blood lead level exceeds the current numerical criterion for medical removal under reference 21-1.

(2) Employee Counseling. The physician shall counsel personnel regarding any abnormalities detected during any screening test. The physician shall make an entry into the employee's medical record that describes the counseling given. The employee shall countersign this entry.

d. Medical Records

(1) Each employee record shall include the following identifying information:

(a) Name

(b) Social security number

(c) Date of birth

(d) Dates of examinations

(e) Job titles, job codes, and/ or primary and secondary Navy Enlisted Classification Code (NEC).

(2) All records of examinations, possible lead-related conditions, related laboratory results, and all forms and correspondence related to the employee's medical history shall become a permanent part of the health record. The cognizant activity shall retain such records for the period of employment plus 20 years, or 40 years, whichever is longer.

(3) Medical facilities shall enter the judgment of the occupational health physician concerning the adequacy of the diagnostic information to support the impression of lead-related

disease in the medical record. Lacking definitive information, the evaluating physician must exercise his/her best medical judgment on each individual case.

(4) Activities shall make available copies of any examinations, laboratory results, or special studies in an employee's health record or compensation folder to a physician of the employee's choice after execution of a proper release of information form.

(5) Should the Navy select the initial physician, the employee may designate a second physician to review any findings and conduct independent examinations and tests as may be deemed necessary. The Navy shall provide to the initial and consulting (second) physician the following:

- (a) Copy of reference 21-1 and this chapter
- (b) Description of employee's duties
- (c) Employee's exposure level
- (d) Description of PPE
- (e) Blood lead determinations
- (f) All prior written medical opinions.

(6) The cognizant medical activity shall maintain these medical records.

(7) Each individual currently or previously employed by Department of the Navy (DON) or any other person he/she may designate shall have access to the records, as paragraph 2109d(2) defines, within 15 days of the request.

2110. Work Performed by Private Contractors

a. Use references 21-10 and 21-11 to design lead contract specifications in Navy facilities.

b. Contract administrators shall insure that each contract, for work performed by an independent contractor in the United States or overseas which may involve the release of lead dust, shall incorporate the appropriate references and clauses to ensure that:

(1) The contractor is aware of the potential hazard to his/her employees and Navy personnel.

(2) The contractor complies with references 21-1, 21-2, 21-3, and 21-12 to protect his/her employees, as well as Navy personnel.

(3) The contractor shall control lead dust outside of the work boundary to less than 30 $\mu\text{g}/\text{m}^3$ at all times, and shall perform sufficient monitoring to confirm that this level of control is maintained. In addition, the controlled work area(s) shall meet this criteria prior to release for unrestricted access. Contractors shall provide copies of their monitoring results to the cognizant industrial hygienist.

2111. Responsibilities

a. The Chief, Bureau of Medicine and Surgery (BUMED) shall:

- (1) Centrally manage the lead medical surveillance program ashore and afloat.
- (2) Provide professional industrial hygiene technical support and training assistance to commands for the purpose of evaluating the potential for lead exposure.

b. Commanders of Echelon Two and other headquarters commands shall:

- (1) Provide advice and technical assistance to define appropriate engineering and work practice controls, and to identify acceptable lead free substitute materials.
- (2) Ensure program support by budgeting the resources required to meet the regulatory standards for the control of lead as prescribed by this chapter.

(3) Determine the applicability of reference 21-2 to any operations within their respective claimancies and provide policy and guidance to affected commands and activities. This will require procedures to ensure pre-placement medical screening and training are provided to workers based on occupational "task based triggers" specified in reference 21-2.

c. COMNAVFACENGCOM shall:

- (1) Provide advice and technical assistance concerning lead paint in Navy buildings, particularly housing, childcare facilities and hospitals.
- (2) Ensure that contracting officers and representatives receive the appropriate level of training to adequately plan, design, oversee and review lead construction work.

d. Commanding Officers of shore activities shall:

- (1) Apply control measures and monitoring procedures prescribed in this chapter to processes using lead or lead containing materials.
- (2) Budget resources in order to meet these lead control requirements.

Chapter 21

References

21-1. Title 29 Code of Federal Regulations (CFR) 1910.1025, Lead (as amended) (NOTAL)

21-2. Title 29 CFR 1926.62, Lead in Construction (NOTAL)

21-3. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety and Health Program Manual for Forces Afloat (NOTAL)

OPNAVINST 5100.23F
15 July 2002

- 21-4. Title 29 CFR 1910.94, Ventilation (NOTAL)
- 21-5. American Conference of Governmental Industrial Hygienists Pub. No. 2092, Industrial Ventilation: A manual of Recommended Practice, 24th Edition (NOTAL)
- 21-6. American National Standards Institute (ANSI) Z9.2-2001, American National Standard for Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems (NOTAL)
- 21-7. MIL-HDBK-1003/17C of 29 Feb 96, Industrial Ventilation Systems (NOTAL)
- 21-8. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision
- 21-9. NEHC Technical Manual, Medical Surveillance Procedures Manual and Medical Matrix, latest revision
- 21-10. UFGS-13282N of Sept 99, Removal and Disposal of Material Containing Lead (NOTAL)
- 21-11. UFGS-13283N of Sept 00, Removal and Disposal of Lead-Containing Paint (NOTAL)
- 21-12. Title 29 CFR 1910.134, Respiratory Protection (NOTAL)

Appendix 21-A

Required Respirator

Airborne Concentration of Lead or Condition of Use	Required Respirator
Not in excess of 0.5 mg/m ³	Half mask, air purifying respirator (10xPEL) equipped with high efficiency filters ^{2,3}
Not in excess of 2.5 mg/m ³	Full face piece, air purifying respirator (50xPEL) with high efficiency filters ³
Not in excess of 50 mg/m ³ (1000xPEL)	1. Any powered, air purifying respirator with high efficiency filters ³ or 2. Half mask, supplied air respirator operated in positive pressure mode
Not in excess of 100 mg/m ³ (2000xPEL)	Supplied-air respirators with full face piece, hood, helmet, or suit operated in positive pressure mode
Greater than 100 mg/m ³ , unknown concentration or fire fighting.	Full face piece, self-contained breathing apparatus operated in positive pressure mode

¹Respirators specified for high concentrations can be used at lower concentrations of lead.

²Full facepiece is required if lead aerosols cause eye or skin irritation at the use concentrations.

³A high efficiency particulate air (HEPA) filter means 99.97 percent efficient against 0.3 micron size particles. Use 42 CFR 84 approved p100 filters to retain consistency with previous NIOSH HEPA filter color-coding.

CHAPTER 22

NON-IONIZING RADIATION

2201. Discussion

The term non-ionizing refers to forms of radiation, which do not have sufficient energy to cause ionization of atoms or molecules. Typically, examples include the electromagnetic emissions radiated by lasers, radiofrequency (RF), and microwave sources.

2202. Policy

The Department of the Navy (DON) policy is to preserve and maintain the health of its personnel by adopting practices that eliminate or control potentially hazardous radiation exposures. This policy encompasses:

- a. Limiting personnel exposures to levels that are within permissible exposure guidelines
- b. Identifying, attenuating or controlling through engineering design, administrative actions or protective equipment, hazardous exposure levels and other dangers associated with non-ionizing radiation sources
- c. Controlling areas in which harmful exposure to unprotected personnel could occur
- d. Ensuring personnel are aware of potential exposures in their work places and duty assignments and the control measures imposed to limit their exposures to levels that are within the permissible guidelines
- e. Investigating and documenting overexposure incidents.

2203. Applicability

All Navy activities employing sources of non-ionizing radiation which may affect the safety and health of personnel shall observe radiation protection requirements, exposure standards and safety guidelines. Provisions of this chapter do not apply to exposures administered to patients undergoing medical diagnostic or therapeutic procedures.

2204. Laser Radiation

Lasers are designed to operate at various wavelengths in the ultraviolet, visible and infrared portions of the electromagnetic spectrum, and are used in various military, industrial, medical and scientific applications. While mechanisms for biological damage from lasers are similar to effects produced from absorption of energy from conventional light sources, lasers are of special concern because of their potential to project hazardous levels of energy over great distances. Exposure to lasers can result in permanent and disabling eye injury.

2205. Laser Radiation Policy

Chief, Bureau of Medicine and Surgery (BUMED) is the administrative lead agent for laser safety within the DON. Responsibilities for setting forth DON policy and guidance in the identification and control of laser radiation hazards are set forth in reference 22-1.

2206. Laser Permissible Exposure Limits (PELs)

a. Laser PELs, also referred to as threshold limit values (TLVs) and maximum permissible exposure (MPE) limits, are published in references 22-2 and 22-3 respectively. For laser exposures that are within the PEL, no adverse biological effects are expected to occur even under repeated or long-term exposure conditions. Only trained and technically qualified personnel shall apply these exposure limits in determining laser safe viewing conditions, since an improperly conducted laser hazard evaluation may pose serious risks to a person's eyes.

b. Laser exposure limits are set to protect tissue from damage and are not the equivalent of comfortable viewing levels. Operators of lasers need to be aware of secondary laser safety concerns. For example, intrabeam viewing of visible wavelength lasers, even at or below the permitted safe level, will still be perceived as an intense light source capable of producing disabling glare or visual after-images. These temporary visual effects can interfere with performing critical tasks such as operating vehicles or aircraft. Similarly, intrabeam viewing of lasers at or below the permitted exposure limits can still damage or "saturate" night vision viewing devices because of the high amplification of incident light levels provided by the devices. Wearing of laser protective eyewear can also lead to other safety concerns, such as the potential for blocking or filtering out the color of some warning or alarm indicator lights.

2207. Laser Classification, Labeling, Technical Assistance and Exposure Incidents

a. The Navy has adopted a system for categorizing the hazards of lasers which provides a practical means for determining safety requirements appropriate for different types of lasers. These categories range from a Class I laser that is safe to view under all conditions, to the Class IV laser which can cause eye damage under most viewing conditions. Appendix 22-A provides information on laser classification, types of laser warning signs and labels, technical assistance and exposure incidents.

b. For most lasers used in medical, laboratory, research and industrial applications, use of the classification system precludes the necessity for performing any laser measurements or calculations. Reference 22-4 requires manufacturers to classify and label their laser systems. Laser measurements or laser safety calculations will usually be required only for lasers operating on outdoor ranges or in open areas when it is necessary to define a laser nominal hazard zone (NHZ).

2208. Military Exempt Lasers

Lasers or laser systems designated for combat, combat training or classified in the interest of national security may be exempted from compliance with some or all of the provisions of reference 22-4. To obtain military exemption status, the contractor must have written authorization from the military contracting activity, and the laser product must be certified to conform with re-

quirements in reference 22-5 and have been approved by the Navy Laser Safety Review Board (LSRB). Commands shall maintain a current inventory of all military exempt lasers for submission to the administrative lead agent as requested. Commands wishing to dispose of lasers shall obtain approval from BUMED following guidance in references 22-1 and paragraph 2205.

2209. Laser Safety Review Board (LSRB)

Military laser systems are reviewed by the LSRB during their development to ensure that adequate safety criteria have been incorporated. LSRB review is required at appropriate stages of development and prior to introduction of prototype or production units into the fleet for testing or initial use. An important function of the Navy Laser Safety Program is a determination of the nominal ocular hazard distance (NOHD) or safe viewing range, for each operational laser system used in the Navy. LSRB review also applies to Class IIIb and Class IV commercial lasers and laser systems that are not intended solely for laboratory or medical use. Reference 22-6 contains general guidance for materials necessary and procedures followed by the LSRB review.

2210. Laser Safety Hazard Control Program

Commands operating Class III or IV commercial or military exempt lasers shall establish a laser safety program and designate a laser system safety officer (LSSO) per reference 22-6. The laser safety program shall include an inventory of all commercial Class IIIb, Class IV and all classes of military exempt lasers that are assigned to the command lasers for submission to the administrative lead agent as requested.

NOTE:

Some commercially available laser pointers are categorized as Class IIIa lasers with output levels that are not considered safe for all viewing conditions. A formal laser safety program is not required for Class IIIa laser pointers; however, the user needs to recognize that care must be exercised to control its accessibility (kept out of the hands of children or others who are unaware of the hazardous nature of lasers), and to avoid directing the pointer at those in the audience. Class II laser pointers do not pose a hazard during normal viewing, and their use is not restricted.

2211. Medical Surveillance Procedures

Enrollment in a laser radiation medical surveillance program is limited to those personnel who are clearly at risk from exposure to laser radiation. The nature of such risks is associated with accidental injuries resulting from excessive exposure to laser levels and not as a result of chronic exposures. The command LSSO determines which personnel should be enrolled in the surveillance program using the following guidance:

- a. Laser workers requiring medical surveillance are those individuals who routinely work with Class IIIb or Class IV lasers under conditions where there is a likely potential for accidental exposures to excessive levels. These workers require a pre-placement and termination laser eye examination per reference 22-7.

b. The following personnel generally require medical surveillance:

(1) Research and development (R&D) and laboratory personnel who routinely work with unenclosed Class III and Class IV laser beams

(2) Maintenance personnel who routinely repair or align Class III or Class IV laser systems

(3) Operators (personnel behind the laser) and down-range personnel who routinely work with Class III or Class IV engineering laser transits, geodimeters and alignment laser devices

(4) Operators who routinely work with Class IIIb and Class IV industrial lasers where access to an unenclosed beam path is possible.

c. Other laser workers or personnel where the potential for accidental exposure is deemed very unlikely generally do not require medical surveillance. For example:

(1) Personnel who work with Class I or Class II lasers, or with laser systems containing Class III or Class IV lasers when there is little or no potential for exposure to the open laser beam

(2) Visitors or other personnel involved infrequently in laser testing, demonstrations or training, when the LSSO has ensured such personnel will be protected from exposure to levels of laser radiation greater than the PEL

(3) Supervisory, clerical and custodial personnel working in laser areas where laser safety procedures preclude their exposure to levels of laser radiation above the PEL

(4) Operators of fielded military laser systems when operations are conducted on established laser ranges, or as part of training operations where prescribed laser safety procedures are enforced

(5) Personnel involved in "force on force" laser training exercises where appropriate protection is established, either in the form of administrative controls or procedures, or where laser protective eyewear is provided.

2212. Laser Safety Training

a. Commands shall provide LSSO laser safety training through the completion of a Laser System Safety Officer Course at the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN). BUMED may approve equivalent training. There are four categories of LSSOs, administrative laser safety officer (ALSO), technical laser safety officer (TLSO), laser safety specialist (LSS), and range laser safety specialist (RLSS). Re-testing at the LSSO's highest certification level is required to maintain certification for all categories of LSSO every 4 years. If the LSSO fails the re-certification examination, the LSSO will have to be re-certified by attending the appropriate course. Commanding officers should determine which category of LSSO is appropriate for their command considering their mission, types of la-

sers being used, and size of the laser safety program. Laser safety-training requirements at medical treatment facilities for the medical LSSO and designated medical personnel are contained in reference 22-8.

(1) An ALSO is qualified to:

- (a) Establish and manage a unit level laser safety program.
- (b) Approve, disapprove, or submit for safety approval to higher authority all local laser uses, both portable and fixed.
- (c) Instruct employees and supervisors on the safe use of lasers.
- (d) Supervise laser operations and maintenance.
- (e) Manage laser incident investigations as appropriate. Technical assistance of a LSS or a RLSS is required.
- (f) Maintain a laser medical surveillance program.
- (g) Maintain an inventory of military-exempt and class IIIb and class IV lasers.
- (h) Post laser warning signs and devices.
- (i) Ensure that laser operators have the appropriate knowledge to safely operate their specific lasers (supervisor safety briefs, factory training school, instructional materials, etc.)
- (j) Provide safety briefs/pre-mission briefs to laser range users.
- (k) Prior to use of a laser range, ensure/confirm that warning signs have been posted, the area is clear of specular reflectors, personnel have required LEP, and all other safety conditions for range laser use outlined in the range regulations or range standard operating procedures (SOPs) are met.
- (l) Perform laser eye protection inspections.

(2) A TLSO is qualified to:

- (a) Understand the calculations and measurements of laser safety parameters such as Nominal Ocular hazard Distances (NOHDs) and required optical densities for laser eyewear.
- (b) Train ALSOs using the administrative lead agent (ALA) approved course curriculum (Qualifications of TLSOs as instructions requires ALA/lead Navy technical laboratory (LNTL) approval.
- (c) Understand classification of lasers and laser systems.

(d) Perform the duties of a laboratory, installation, base, research facility, or RLSO that includes establishing and managing a base or installation laser range safety program; approving/disapproving the use of laser systems and laser operations on their range that fall within the guidelines of the range certification; and performing annual range safety compliance inspections; and ensuring laser ranges under their cognizance are certified/re-certified by RLSS at least every 3 years or when changes to the range fall outside the current certification.

(e) Ensure range regulations/SOPs are provided to commands requesting unsafe of the laser range.

(f) Review training plan (to include laser type(s) and proposed employment tactics) of each command requesting access to the laser range certification.

(g) Perform the same duties as an ALSO.

(3) A LSS is qualified to:

(a) Perform the calculations and measurements of laser safety parameters such as NOHDs and required optical densities for laser eyewear.

(b) Train ALSOs, TLSOs, RLSOs, and LSSs using the ALA-approved course curriculum. (Qualification of instructors requires ALA/LNTL approval).

(c) Classify lasers and laser systems.

(d) Conduct technical aspects of laser incident investigations.

(e) Perform the same tasks as a TLSO.

(4) A RLSS is qualified to:

(a) Conduct laser radiation hazard surveys and evaluations for commanding officer certification.

(b) Perform the calculations and measurements required to certify a laser range.

(c) Train ALSOs and RLSSs using the ALA-approved course curriculum. (Qualification of instructors requires ALA/LNTL approval.)

(d) Conduct technical aspects of laser range incident investigations.

(e) Perform the same tasks as a TLSO.

b. Laser range safety officers, laser maintenance personnel and industrial laser supervisors shall complete a formal command laser safety training course as outlined in reference 22-6.

c. Commands shall provide formal classroom training on the potential hazards associated with accidental exposure to laser radiation to all personnel in areas operating Class IIIb (and Class IIIa with danger logo) or Class IV lasers. In particular, the vulnerability of the eyes to being damaged by lasers shall be emphasized. Commands shall conduct annual refresher training per reference 22-6.

d. For employee training, the following laser safety training videotapes are available from the Norfolk Regional Electronic Media Center: *Laser Hazards and Control*, 804245DN, *Hazards and Control of Military Lasers*, 804246DN, and *Laser Safety in Medical Treatment Facilities*, 803198DN. (See section 0604b). Additional information is available in reference 22-9 on laser operations, hazard distances for Navy laser systems and use of laser protective eyewear.

2213. Other Optical Sources

Broadband optical sources such as germicidal lamps, phototherapy, sun lamps, blacklights, arc lights, projector lamps, high intensity discharge lamps and infrared arrays are also used in many medical and industrial applications. These types of light sources may require controls to prevent possible acute effects such as skin burns, photokeratitis, cataracts or retinal burns. Exposure guidance can be found in reference 22-2. Obtain assistance in the evaluation of broadband optical sources, where personnel are considered to be at ocular risk, from an industrial hygienist or radiation health officer.

2214. Radiofrequency (RF) Electromagnetic Fields (EMF)

RF exposure is primarily associated with operation of various radars and communication systems at Navy shore facilities and aboard ships. In addition to personnel concerns, RF fields may generate induced currents or voltages that could cause premature activation of electro-explosive devices in ordnance, equipment interference or sparks and arcs that may ignite flammable materials and fuels.

2215. Radiofrequency Ashore and Afloat

Naval Sea Systems Command (COMNAVSEASYS COM) is the lead agency for coordinating electromagnetic safety programs for naval ships. Space and Naval Warfare Systems Command (COMSPAWARSYSCOM) is the lead agency for coordinating electromagnetic safety programs for shore facilities. Reference 22-10 contains RF hazard (RADHAZ) guidance regarding hazards of RF exposure to personnel, fuels and ordnance.

2216. RF Permissible Exposure Limits (PELs)

a. Reference 22-10 will be amended to reflect the current RF PELs listed in reference 22-11 for the frequency range of 3 kilohertz to 300 Gigahertz. Limited information on the RF PELs is provided in the tables in appendix 22-B. Those persons conducting RF hazard analysis and evaluations should consult the more extensive technical guidance contained in references 22-11, 22-12, and 22-13.

b. Exposure limits are specified for locations that are defined as either controlled or uncontrolled environments. Controlled environments are areas where exposure may be incurred by personnel who are aware of the potential for RF exposure as a result of employment or du-

ties, by individuals who knowingly enter areas where higher RF levels can reasonably be anticipated to exist and by exposure incidental to transient passage through such areas. Uncontrolled environments generally include public areas, living quarters and work places where there is no expectation that higher RF levels should be encountered.

c. The RF exposure limits for controlled environments represent scientifically derived values to limit absorption of RF energy in the body, and to restrict the magnitude of RF currents induced in the body. This means that the amount of energy absorbed is insufficient to produce or cause any adverse effects on health, even under repeated or long-term exposure conditions. The controlled environmental limits are the equivalent of personnel exposure standards for all individuals. In uncontrolled environments where access is not restricted or controlled, lower permissible exposure levels have been adopted as a consensus to maintain lower exposure levels outside of well-defined areas. The limits for uncontrolled environments should not be interpreted as being imposed to lessen any known adverse health effect, and should not be interpreted as being the limit on personnel exposure for non technical employees or for members of the public that enter a controlled environment.

d. For shipboard situations, consider the weather decks, enclosed and open masts and electronic work spaces as controlled environments. For shore stations, consider accessible areas beyond a station's perimeter fence line as uncontrolled environments. Within a station's boundaries, differentiation between controlled and uncontrolled environments will require individual determinations. For both ship and shore situations, incorporate existing physical structures or areas, such as decks, fences, rooftops, etc., in defining the location of boundaries for controlled environments.

e. No special RF exposure limits or additional exposure restrictions are imposed in the case of pregnancy.

2217. RF Measurement and Evaluation

a. Facilities shall determine RF levels for all areas in which personnel could receive exposures in excess of the exposure limits. In addition, shore facilities must determine RF field levels where locations of RF emitting antennas may be expected to raise concerns among personnel or generate public inquiries regarding levels of RF emissions beyond the base perimeter. Facilities must use proper RF measurement techniques and application of the RF exposure limits to avoid imposing unnecessary restrictions on operations or establishing overly restrictive protective boundaries. Facilities may obtain assistance in measuring RF emission levels from the activities listed in appendix 22-C.

b. A comprehensive RF hazard evaluation for major platforms, such as warships or communication stations, where multiple RF emitters exist in close proximity to each other, requires considerable technical familiarity with electromagnetic fields. Such surveys may involve determination of boundary locations for protective fences or enclosures, or specifying operational conditions or restrictions necessary for protection of personnel. The activities listed in appendix 22-C may perform these evaluations, which are primarily an engineering type survey.

c. In addition to appendix 22-C, safety or health professionals may make RF measurements or calculations for situations that primarily consist of determining RF exposure levels for a particular area occupied by personnel.

2218. Safety Certification

a. Activities identified in paragraph 2218(c) shall obtain a survey certification from the technical activities listed in appendix 22-C to ensure all RF sources have been evaluated, safe separation distances have been determined, warning signs posted and any other safety measures, such as protective fences, have been defined.

b. To maintain certification, the site shall forward information on new RF sources that are installed to the technical activity listed in appendix 22-C to obtain a theoretical or calculated safety evaluation. The activity with the original site certification shall maintain this provisional certification.

c. All shore facilities having RF emitters must obtain baseline certification. For most facilities, certifications/re-certifications will require an instrumented site survey or desktop analysis. Some activities with only a few low power RF systems may require neither. The certifying agency will determine certification survey/re-certification requirements of the facility. Re-certifications will be scheduled as follows:

(1) Three-Year Resurvey Re-certification. Major COMNAVCOMTELCOM transmitter facilities are included within this group.

(2) Five-Year Resurvey Re-certification. Sites with large numbers or frequent additions/changes of RF emitters or a site located in populated areas where public exposure to RF emissions may be an environmental concern.

(3) Ten-Year Resurvey Re-certification. Sites having a moderate and stable number of RF microwave emitters.

2219. Warning Signs, Labels and Devices

a. The RF hazard warning signs, labels, devices, exposure incident procedures and technical assistance are shown in appendix 22-C. Appropriate warning statements are added in the lower triangular portion of the sign. Variations are authorized, such as subdued signs for camouflage or to improve visibility under certain lighting conditions, provided the general wording and layout of the sign remain the same.

b. Activities shall post RF hazard warning signs at all access points to areas in which levels exceed the exposure limits for controlled environments.

c. Activities should post RF hazard warning signs in appropriate areas in which the RF levels exceed the exposure limits for uncontrolled environments as determined by cognizant engineering or safety or health professionals.

d. In areas where access to levels greater than 10 times the exposure limits for controlled environments may exist, warning signs alone do not provide sufficient protection. Activities shall provide other warning devices and controls, such as flashing lights, audible signals, barriers or interlocks, as determined by the certification authority, depending upon the potential for exposure.

- e. See appendix 22-C for reporting of RF incidents.

2220. Research, Development and Acquisition

a. Activities performing research, development, testing and evaluation (RDT&E) and acquisition of RF systems, including non-developmental items and commercial off-the-shelf items, shall identify RF control requirements by incorporating adequate protection measures or identifying appropriate operational restrictions to maintain personnel exposures within the exposure limit. System safety studies under reference 22-13 shall use the exposure limits given in reference 22-11 to define restrictions necessary to limit personnel exposures.

b. Activities shall include safety information, operational restrictions, and safe exposure distances for systems being fielded in appropriate fielding documents and technical manuals to limit RF exposure of personnel engaged in operation, maintenance and repair of the system.

2221. RF Safety Training

Activities shall provide RF safety training to personnel who routinely work directly with RF equipment or whose work environments contain RF equipment that routinely emits RF levels in excess of the exposure limits for controlled environments. Activities shall conduct training before assignment to such work areas, and shall focus on awareness of the potential hazards of RF fields, established procedures and restrictions to control RF exposures, and personnel responsibility to limit their own exposures. Activities may incorporate RF safety training in periodic safety training programs to satisfy command-training objectives.

2222. Protective Clothing

The Navy does not authorize RF-shielded protective clothing for routine use as a means of protecting personnel. This does not preclude use of other protective equipment, such as electrically insulated gloves and shoes for protection against electrical shock or RF burn, or for insulation from the ground plane.

2223. Low Frequency and Static Electric and Magnetic Fields

a. Electric and magnetic fields exist around power lines, electrical devices and appliances. The intensity of these fields decreases rapidly with distance. While questions have been raised about the possibility of health effects from exposure to electric and magnetic fields at levels that are commonly encountered in homes and most work places, findings issued by various scientific review panels have not confirmed that such fields pose any risk to health.

b. Since the body is a conductor, electric fields induce a charge on the surface of the body that results in current flow inside the body. Time varying magnetic fields, or body movement in a static magnetic field, induce electric fields and current flow inside the body. For commonly encountered fields near high voltage transmission lines, power distribution systems, office equipment, and household appliances, the magnitude of these induced currents will typically be below levels which are perceptible. Existing guidelines given in references 22-2, 22-11, and 22-12 have been established to limit induced current densities in body tissues. This ration-

ale has been used to set a biological endpoint since no other definable risk criterion has been identified for establishing a health standard for electric and magnetic fields.

2224. Video Display Terminals

a. Video display terminals (VDTs) are electronic devices that typically involve individuals remaining in close proximity to them for long periods of time. Various forms of electromagnetic energy are associated with VDTs, including static electric fields near the screen, 60 Hz electric and magnetic fields, higher frequency fields around 10 kHz from the beam sweep circuits and low intensity X-rays near some internal components.

b. Some computer manufacturers have chosen to advertise VDTs with low magnetic field emissions for marketing reasons. Other manufacturers have produced various products that are advertised as reducing electromagnetic emissions from VDTs. Extensive measurements have shown that the fields emitted from VDTs are already well below exposure guidelines. There is no requirement or need to periodically measure emissions from VDTs, or to procure add-on screens for shielding electromagnetic emissions from VDTs.

c. VDTs are sensitive to electrical interference, and the displays have been reported to be affected by 60 Hz magnetic fields as low as 10 to 15 milligauss. Such interference poses no health concerns other than annoyance. Correction usually involves relocation of the VDT away from the source of interference or in some cases, adding shielding to nearby power distribution components.

2225. Responsibilities

a. Commander, Naval Sea Systems Command (COMNAVSEASYSCOM) shall:

(1) Serve as the lead agent for RF radiation safety and hazard analysis for the Navy's Electromagnetic Environmental Effects (E3) Program, and as the technical lead agency for laser safety and laser safety hazard analysis in the Navy.

(2) Ensure a capability exists to conduct laser hazard surveys of military laser systems, laser installations and firing ranges.

(3) Sponsor reference 22-10 in providing operating procedures and guidance for electromagnetic hazards to personnel, ordnance and fuel and for RF hazard certification for ships and craft.

b. Commander, Space and Naval Warfare Systems Command (COMSPAWARSYSCOM) shall:

(1) Serve as the technical lead agency for RF radiation safety and hazard analysis as a component of the Navy's Electromagnetic Environmental Effects (E3) Program for shore facilities.

(2) Provide information to COMNAVSEASYSCOM for updating information on the hazards of electromagnetic radiation to personnel and fuels in reference 22-10.

c. Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Serve as administrative lead agency for laser safety and laser safety hazard analysis in the Navy.

(2) Will maintain a list of all DON laser systems that have been exempted from Title 21 Code of Federal Regulations and their status.

(3) Provide the secretariat to the LSRB and ensure laser safety design standards, safety documentation and training and laser protective devices are developed for military laser systems.

(4) Ensure laser safety design standards, safety documentation, training standards, and laser eye protection are developed for military laser systems.

(5) Serve as the lead agency for guidance on personnel exposure limits for lasers, RF and other electromagnetic sources.

(6) Provide technical assistance to Navy commands addressing electromagnetic exposures or human health effects issues with local governments or state agencies.

(7) Maintain the Navy repository of laser and RF investigative reports involving personnel injuries from lasers and RF overexposures.

(8) Provide assistance through the Navy Environmental Health Center for laser and RF hazard evaluations at industrial and medical activities.

(9) Sponsor appropriate biological research for addressing the effects of electromagnetic energy on humans.

d. Other Echelon Two and headquarters commands shall ensure:

(1) Safety requirements are included in procurement activities for the design, operation, maintenance, repair, technical orders, handbooks, manuals and other publications related to lasers and RF systems per references 22-6 and 22-11.

(2) Laser and RF hazard surveys and certifications are obtained for new equipment, installations, laser training ranges or modifications of existing equipment, installations or ranges when required to define laser or RF exposure levels or determine personnel access restrictions.

e. Commanders, commanding officers, and officers in charge shall:

(1) Establish a laser safety program per reference 22-6 to protect personnel.

(2) Ensure personnel are trained to be familiar with potential laser or RF exposure hazards and appropriate protective measures.

(3) Allow laser operation only at installations and ranges that have been certified and approved by an appropriate LSSO as safe for each specific laser and tactic to be used.

(4) Obtain safety certification for non-ionizing radiation sources. Update these certifications when new items are added. Also obtain provisional certification whenever new lasers or RF systems are installed, existing RF radiating antennas are modified or relocated or new construction occurs in the vicinity of an RF radiating antenna, when such changes may affect restrictions or boundaries imposed for limiting personnel exposures to RF fields.

(5) Ensure laser or RF surveys are conducted by technically competent personnel. Technical activities are listed in appendix 22-A for laser and 22-C for RF safety.

(6) Investigate, document and report results of laser or RF exposure incidents per chapter 14 of this document. Refer also to appendix 22-A for laser incidence, 22-C for RF incidence, and reference 22-7.

(7) Ensure that the use and disposal of military exempt lasers are per reference 22-1.

(8) Prepare an annual inventory of all Class IIIb, Class IV, and all classes of military exempt lasers per references 22-1 and 22-6.

Chapter 22

References

- 22-1. SECNAVINST 5100.14C of 5 May 99, Military Exempt Lasers
- 22-2. American Council of Government Industrial Hygienists, Threshold Limit Values and Biological Exposure Indices (NOTAL)
- 22-3. American National Standards Institute (ANSI) Z136.1-2000, American National Standard for the Safe Use of Lasers, (NOTAL)
- 22-4. 21 CFR 1040 (as amended)
- 22-5. MIL-STD 1425A, Safety Design Requirements for Military Lasers and Assorted Support Equipment
- 22-6. OPNAVINST 5100.27/MCO 5104.1A, Navy Laser Hazards Control Program (NOTAL)
- 22-7. BUMEDINST 6470.23 of 18 Aug 99, Medical Management of Non-Ionizing Radiation Casualties
- 22-8. BUMEDINST 6470.19 of 24 Aug 90, Laser Safety for Medical Facilities
- 22-9. E0410-BA-GYD-010, Technical Manual, Laser Safety
- 22-10. NAVSEA OP 3565/NAVAIR 16-1-529/NAVELEX 0967-LP-624-6010, Volume I, Technical Manual, Electromagnetic Radiation Hazards (Hazards to Personnel, Fuel and Other Flam-

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mable Material and Volume II, Technical Manual, Electromagnetic Radiation Hazards (Hazards to Ordnance)

22-11. DOD Instruction 6055.11 of 21 Feb 95, Protection of DOD Personnel from Exposure to Radiofrequency Radiation and Military Exempt Lasers

22-12. Institute of Electrical and Electronics Engineers, IEEE Std.C95.1, 1999 Edition (Incorporating IEEE Std C95.1-1991 and IEEE Std C95.1a-1998, IEEE Standard for Safety Levels with Respect to Human Exposure to Radiofrequency Electromagnetic Fields 3kHz to 3GHz, (NOTAL)

22-13. Institute of Electrical and Electronics Engineers, IEEE Standard Recommended Practice for Measurement of Potentially Hazardous Electromagnetic Fields, RF and Microwave, IEEE C95.3-1991 (NOTAL)

22-14. International Radiation Protection Association, International Non-Ionizing Radiation Committee, Interim Guidelines on limits of Exposure to 50/60 Hz Electric and Magnetic Fields, May 1989

22-15. International Radiation Protection Association, International Non-Ionizing Radiation Committee, Guidelines on Limits of Exposure to Static Magnetic Fields, May 1993

Appendix 22-A

Laser Classification, Labeling, Warning Signs, Technical Assistance, and Exposure Incidents

CLASS I LASERS

Lasers which by inherent design normally cannot emit radiation levels in excess of the permissible exposure limits. Not hazardous under almost all operational or viewing condition. No controls required.

CLASS II LASERS

Low-powered lasers and laser systems that emit less than 1mW visible continuous wave (CW) radiation. Not considered hazardous for momentary exposure. These lasers carry a CAUTION label.

CLASS III LASERS

Lasers which do not present a diffuse reflection hazard.

Class IIIa

Low-powered laser systems that emit 1 to 5 mW visible CW radiation. Lasers or laser systems of less than 2.5 mW/cm^2 are not considered to be hazardous for momentary (0.25 seconds) unintentional exposures unless the beam is viewed with magnifying optics. These lasers carry a CAUTION label. Lasers that exceed 2.5 mW/cm^2 carry a DANGER label and should not be directly viewed even momentarily.

Class IIIb

Medium-powered lasers or laser systems considered to be hazardous when the direct or specularly reflected beam is viewed without protection. Special care is required to prevent intrabeam viewing and to control specular reflections from mirror-like surfaces. These lasers carry a DANGER label and require the use of protective eyewear.

CLASS IV LASERS

High-powered lasers or laser systems that can be hazardous to the eye from intrabeam viewing, specular reflections or diffuse reflections. They may also be hazardous to the skin or ignite flammable materials. These lasers carry a DANGER label. Strict controls are required, including use of protective eyewear and door interlocks.

Example of a Class II Laser Warning Label



Example of a Class IV Laser Warning Label



Laser safety warning signs for posting at laser facilities and at laser ranges are stocked at the Naval Inventory Control Point, Naval Publication and Forms Branch, 700 Robbins Ave., Philadelphia, PA 19111-5098. For Information concerning these forms contact: commercial (215)(697-2626), or DSN (442-2626). Order on MILSTRIP via Defense Automated Addressing Systems. The following signs are available:

Sign Contents: "DANGER, LASER, KNOCK BEFORE ENTERING"
Type: Laminated 10 inches high by 14 inches wide
Form No.: 0118-LF-114-8900

Sign Contents: "DANGER, LASER RANGE IN USE, DO NOT ENTER"
Type: Laminated 18 inches high by 24 inches wide
Form No.: 0118-LF-020-1100

Laser Exposure Incidents

a. If eye damage from laser exposure is suspected or observed, and in all cases of exposure to levels in excess of five times the laser exposure limits of this chapter, the cognizant activity shall ensure the individual receives a medical examination by an ophthalmologist or optometrist as soon as possible. While laser injuries associated with military operations have been

rare, limited experience indicates that the extent of eye damage from an accidental laser exposure may not be readily or initially apparent to either the individual or to local medical personnel. Since early medical intervention may lessen the severity of the damage or subsequent retinal scarring from the laser injury, efforts should be made to have the individual promptly seen by an ophthalmologist or at the ophthalmology department of a hospital **on a walk-in emergency basis**.

b. Commands shall investigate and document all suspected laser incidents or mishaps involving personnel exposure to excessive laser energy in accordance with chapter 14 of this manual. The command exercising operational control of the laser has the primary lead for conducting the laser exposure investigation and for ensuring the appropriate report is filed.

c. Commands are required to report exposure incidents (as outlined in subparagraph g) and investigate exposure levels for the following situations:

(1) Personnel injury has been sustained or physical symptoms are experienced by the individual(s) which are believed to be associated with laser exposure.

(2) Inadvertent exposure occurred to members of the general public or to other non-involved personnel as a result of naval operations which have exceeded the PEL.

(3) Exposure circumstances or the severity of the incident or mishap are such that inquiries from news media are anticipated, or are deemed to be of interest to the chain-of-command.

d. Commands shall refer personnel reporting physical symptoms or suspected of having been exposed to levels in excess of the PEL for a medical evaluation or follow-up.

e. Commands shall make initial notification for the occurrence of a laser incident by telephone, fax, message or e-mail to the appropriate technical assistance point listed in this appendix with copy to the Bureau of Medicine and Surgery (MED 212). Discussions following this initial notification can determine whether a more extensive investigation will be necessary and whether a site visit should be scheduled to assist in making laser measurements or an exposure evaluation. Central to the command's investigation will be a determination of the degree of laser exposure incurred since such incidents often involve emotional concerns or health worries which cannot be easily addressed when measurement data is not available. Performing laser measurement assessments are often beyond the technical capabilities of the local command or the nearby medical facility.

f. In cases where it is necessary to reconstruct events or reestablish equipment configuration for conducting a laser exposure assessment, the accuracy of the recreation is crucial to the validity of the subsequent measurements. The command's investigating officer should apply particular attention to obtaining written statements from those involved giving detailed descriptions of the sequence of events, exposure times and equipment set-ups, as well as obtaining appropriate charts, diagrams or photographs indicating the locations of exposed personnel.

g. The command shall submit a final report on the laser incident to the Commander, Naval Safety Center, and to the Bureau of Medicine and Surgery (MED 212), with copies to appro-

appropriate headquarters and systems commands within 30 days of the incident. The command shall also include in the report to BUMED pertinent medical records, retinal photographs and identification data for personnel who were exposed.

Laser Technical Assistance

Interested parties may obtain technical assistance and advice regarding laser safety as follows:

- a. For laser operations at medical activities, contact the Navy Environmental Health Center, (NEHC), 620 John Paul Jones Circle, Suite 1100, Portsmouth, VA 23708-2103, DSN 864-5500, commercial (757) 363-5500, fax (757) 444-3672.
- b. For all laser operations, other than medical, military exemption of lasers, and certification surveys of laser firing ranges, contact the following activities: (Funding for services shall be provided by the requesting command).

Laser System Evaluation and Range Surveys:

Naval Surface Warfare Center Dahlgren Division, 17320 Dahlgren RD Dahlgren, VA 22448,
DSN 249-1060/1149, commercial (540) 653-1060/1149, fax (540) 653-8453
<http://www.nswc.navy.mil/safety/laser>

Laser Range Surveys:

Naval Surface Warfare Center Corona Division (Code SE41), Corona, CA 91718-5000,
DSN 933- 4139, commercial (714) 273-4139.

- c. For laser bio-effects and medical research issues, or assistance in evaluating laser-induced injuries, contact the Naval Health Research Center-Detachment Brooks AFB 8301 Navy Road, Brooks AFB, TX 78235-5365, DSN 240-4699/6552, commercial (210) 536-4699/6552, fax (210) 536-6439/6528.
- d. For guidance on laser exposure limits and health issues, contact the Non-Ionizing Radiation Health Branch, Bureau of Medicine and Surgery (MED 212), 2300 E Street NW, Washington DC 20372-5300, DSN 762-3444, commercial (202) 762-3444, fax (202) 762-0931.

Appendix 22-B

Table 1
RF Permissible Exposure Limits For Controlled Environments

A. Radiofrequency Fields				Averaging Time(T_{avg}) (minutes) E^2, H^2, S
Frequency Range (f) (MHz)	Electric Field (E) (V/m)	Magnetic Field (H) (A/m)	Power Density (S) (mW/cm ²) (E, H Fields)	
.003 - 0.1	614	163	($10^2, 10^6$)	6
.1 - 3.0	614	$16.3/f$	($10^2, 10^4/f^2$)	6
3 - 30	$1842/f$	$16.3/f$	($900/f^2, 10^4/f^2$)	6
30 - 100	61.4	$16.3/f$	($1.0, 10^4/f^2$)	6
100 - 300	61.4	0.163	1.0	6
300 - 3000			$f/300$	6
3000 - 15000			10	6
15000 - 300000			10	$616000/f^{1.2}$
B. Induced and Contact Current Restrictions				
Frequency Range (f) (MHz)	Maximum Current Through Both Feet (mA)	Maximum Current Through Each Foot (mA)	Contact Current (mA)	
0.003 - 0.1	$2000f$	$1000f$	$1000f$	
0.1 - 100	200	100	100	
C. Pulsed Radiofrequency Fields				
Frequency Range (f) (MHz)	Peak Electric Field (E) (kV/m)	Peak Power Density/Pulse for Pulse Duration < 100 msec (mW/cm ²)		
0.1-300000	100	(PEL)(T_{avg})/(5)(pulse width)		
D. Partial- Body Exposures				
Frequency Range (f) (MHz)	Peak Value of Mean Squared Field (V ² /m ² or A ² /m ²)	Equivalent Power Density (mW/cm ²)		
0.1 - 300	< 20 E^2 or 20 H^2	-		
300 - 6000	-	< 20		
6000-96000	-	< 20($f/6000$) ^{0.25}		
96000 - 300000	-	40		

Table 2
RF Permissible Exposure Limits For Uncontrolled Environments

A. Radiofrequency Fields					
Frequency Range (f) (MHz)	Electric Field (E) (V/m)	Magnetic Field (H) (A/m)	Power Density (S) (mW/cm ²) (E, H Fields)	Averaging Time(T _{avg}) (minutes) E ² , S or H ²	
.003 - 0.1	614	163	(10 ² , 10 ⁶)	6	6
.1 - 1.34	614	16.3/f	(10 ² , 10 ⁴ /f ²)	6	6
1.34 - 3.0	823.8/f	16.3/f	(180/f ² , 10 ⁴ /f ²)	f ² /0.3	6
3 - 30	823.8/f	16.3/f	(180/f ² , 10 ⁴ /f ²)	30	6
30 - 100	27.5	158.3/f ^{1.668}	(.2, 9.4x10 ⁵ /f ^{3.336})	30	.0636f ^{1.337}
100 - 300	27.5	0.0729	0.2	30	30
300 - 3000			f/1500	30	-
3000 - 15000			f/1500	900000/f	-
15000 - 300000			10	616000/f ^{1.2}	-
B. Induced and Contact Current Restrictions					
Frequency Range (f) (MHz)	Maximum Current Through Both Feet (mA)		Maximum Current Through Each Foot (mA)	Contact Current (mA)	
0.003 - 0.1	900f		450f	450f	
0.1 - 100	90		45	45	
C. Pulsed Radiofrequency Fields					
Frequency Range (f) (MHz)	Peak Electric Field (E) (kV/m)		Peak Power Density/Pulse for Pulse Duration < 100 msec (mW/cm ²)		
0.1-300000	100		(PEL)(T _{avg})/(5)(pulse width)		
D. Partial- Body Exposures					
Frequency Range (f) (MHz)	Peak Value of Mean Squared Field (V ² /m ² or A ² /m ²)			Equivalent Power Density (mW/cm ²)	
0.1 - 300	< 20 E ² or 20 H ²				
300 - 6000				4	
6000-30000				f/1500	
30000 - 300000				20	

Application and Measurement Notes

Guidance on measuring procedures and techniques for evaluating hazards from RF sources are in the following Institute of Electrical and Electronics Engineers (IEEE) standards that are available for purchase from Customer Service, 445 Hoes Lane, Piscataway, NJ 08854-1331, telephone (800) 678-IEEE:

IEEE C95.1, 1999 Edition - Safety Levels With Respect to Human Exposure to Radiofrequency Electromagnetic Fields, 3 kHz to 300 GHz (order number SH-14878).

IEEE C95.3-1991 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave (order number SH-14886).

Sections 1A and 2A

- The PELs refer to time-averaged exposure values obtained by spatial averaging RF measurements over an area equivalent to the vertical cross-section of the human body.
- At frequencies less than 100 MHz, the applicable exposure limit is given in terms of rms E or H values. Exposure limits can be expressed in terms of plane-wave-equivalent power density values as shown by the S values in parentheses for the E and H fields.
- In nonuniform fields, spatial peak values can exceed the exposure limits even though the spatially averaged value does not exceed the exposure limit. Spatial peak values are limited by the partial-body exposure limits given in section 1D and 2D.
- For exposure duration less than the averaging period, the maximum exposure limit, in any time interval equal to the averaging period is, exposure limit = exposure limit $[T_{avg}/T_{exp}]$, where T_{exp} is the exposure duration in that interval expressed in the same time units as T_{avg} , and the exposure limit is expressed in terms of power density.
- Measurements to determine adherence to the exposure limit should be made at distances of at least 5 centimeters (cm) or greater from any re-radiating objects or reflective surfaces.
- Low-power RF devices, such as hand-held, mobile and marine transmitters, are excluded from compliance with the exposure limits in sections 1A and 2A under the following conditions in which the radiating antenna or structure is not maintained within 2.5 cm of the body:

Controlled environment low-power device exclusion pertains to devices that emit RF energy under the control of an aware user: at frequencies between 100 kHz and 450 MHz if the radiated power is 7 watts, or less; at frequencies between 450 and 1500 MHz, if the radiated power is $(7)(450/f)$ watts, or less, where f is in MHz.

Uncontrolled environment low-power device exclusion pertains to devices that emit RF energy without control or knowledge of the user: at frequencies between 100 kHz and 450 MHz, if the radiated power is 1.4 watts, or less; at frequencies between 450 and 1500 MHz, if the radiated power is $(1.4)(450/f)$ watts or less, where f is in MHz.

- Additional RF exposure limits or exposure restrictions are not imposed in case of pregnancy.

Sections 1B and 2B

- Guidance is provided for limiting the RF induced currents in the human body for free-standing conditions (no skin contact with metallic objects); and under conditions of grasping contact with metallic bodies to limit the maximum RF current through an impedance equivalent to that of the human body. Special measuring equipment is required, and revised rules have been adopted for time averaging at frequencies greater than 100kHz. Obtain assistance from the technical centers listed in this appendix.

Sections 1C and 2C

- Peak power exposure limitations are provided for pulsed conditions where each pulse is less than 100 milliseconds (msec) and there are no more than 5 pulses in the time averaging period. Those limits are given to prevent unintentionally high exposure from decreasingly short averaging times.

Sections 1D and 2D

- In the case of partial-body exposure conditions from highly directional sources or from substantially nonuniform fields over an area equivalent to the body, relaxation of the whole-body PELs of Sections 1A and 2A is allowed for exposures limited to a portion of the body. Partial-body limits do not apply in the case of direct exposure to the eyes.

Appendix 22-C

RFR Hazard Warning Sign, Labels, Exposure Incidents and Technical Assistance

Sign Title: Radiofrequency Hazard Warning - Keep Moving
Form No.: 101/5
Type: 5-inch Label
NSN: 7690-01-377-5893
Superseded NSN: 0967-LF-183-8010

Sign Title: Radiofrequency Hazard Warning - Keep Moving
Form No.: 101/12
Type: 12-inch Label
NSN: 7690-01-377-5894
Superseded NSN: 0967-LP-183-8010

Sign Title: Radiofrequency Hazard Warning - Beyond This Point
Form No.: 102/5
Type: 5-inch Label
NSN: 7690-01-377-5895
Superseded NSN: 0967-LP-153-8010

Sign Title: Radiofrequency Hazard Warning - Beyond This Point
Form No.: 102/12
Type: 12-inch Label
NSN: 7690-01-377-5082
Superseded NSN: 0967-LP-153-8010

Sign Title: Radiofrequency Hazard Warning - Burn Hazard
Form No.: 103/5
Type: 5-inch Label
NSN: 7690-01-377-5896
Superseded NSN: 0967-LP-315-2010

Sign Title: Radiofrequency Hazard Warning - Burn Hazard
Form No.: 103/12
Type: 12-inch Label
NSN: 7690-01-377-5898
Superseded NSN: 0967-LP-315-2010

Sign Title: Radiofrequency Hazard Warning - Fuel Operations
Form No.: 104/5
Type: 5-inch Label
NSN: 7690-01-377-5899
Superseded NSN: 0967-LP-315-1010

Sign Title: Radiofrequency Hazard Warning - Fuel Operations
Form No.: 104/12

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Type: 12-inch Label
NSN: 7690-01-377-5900
Superseded NSN: 0967-LP-315-1010

Sign Title: Radiofrequency Hazard Warning - Blank
Form No.: 105/5
Type: 5-inch Label
NSN: 7690-01-377-5374
Superseded NSN: 0967-LP-350-1010 and 0967-LP-096-3010

Reporting of RF Exposure Incidents

a. Commands shall investigate and document all suspected RF incidents or mishaps involving personnel exposure to excessive RF levels, in accordance with Chapter 14 of this manual. The command exercising operational control of the RF source has the primary lead for conducting the RF exposure investigation and for ensuring the appropriate report is filed.

b. Commands are required to report exposure incidents and investigate exposure levels for the following situations:

(1) Personnel injury has been sustained or physical symptoms are experienced by the individual(s) that are believed to be associated with RF exposure.

(2) Personnel exposure has been determined to have exceeded the appropriate PEL in terms of power density by a factor of five or more. (For exposure determinations, provisions for time averaging and spatial averaging can be used in conjunction with transmitter duty factors and antenna rotation or scanning rates to establish maximum likely exposure levels.)

(3) Inadvertent exposure occurred to members of the general public or to other non-involved personnel as a result of naval operations that have exceeded the appropriate PEL.

(4) Exposure circumstances or the severity of the incident or mishap are such that inquires from news media are anticipated, or are deemed to be of interest to the chain of command.

c. Commands shall refer personnel reporting physical symptoms or suspected of having been exposed to levels in excess of five times the PEL for a medical evaluation or follow-up. Since medical evaluations following RF exposure have been infrequently required and physical signs of injury are usually not manifested, medical personnel should be advised to refer to reference 22-7 for information on RF biological effects.

d. Commands shall make initial notification for the occurrence of an RF incident by telephone, fax, message or e-mail to the appropriate technical assistance point listed in this appendix with copy to the Bureau of Medicine and Surgery (MED 212). Discussions following this initial notification can determine whether a more extensive investigation will be necessary and whether a site visit should be scheduled to assist in making RF measurements or an exposure evaluation. Central to the command's investigation will be a determination of the degree of RF exposure incurred since such incidents often involve emotional or health concerns which cannot be easily addressed when measurement data is not available. Performing RF measurement

Appendix 22-C

assessments are often beyond the technical capabilities of the local command or the nearby medical facility.

e. In cases where it is necessary to reconstruct events or reestablish equipment configuration for conducting an RF exposure assessment, the accuracy of the recreation is crucial to the validity of the subsequent RF measurements. The command's investigating officer should apply particular attention to obtaining written statements from those involved giving detailed descriptions of the sequence of events, exposure times and equipment set-ups, as well as obtaining appropriate charts, diagrams or photographs indicating the locations of exposed personnel.

f. The command shall submit a final report on the RF incident to the Commander, Naval Safety Center and to the Bureau of Medicine and Surgery (MED 212), with copies to appropriate headquarters and systems commands. The command will also include in the report to BUMED pertinent medical records and identification data for personnel who were exposed. BUMED is tasked with maintaining a permanent repository for RF exposure incidents.

Technical Assistance

Commands may obtain site certification, technical assistance and advice as follows:

a. For RF health hazards, personnel exposures and exposure incidents from industrial and medical RF emitting sources, contact the Navy Environmental Health Center (NEHC), 620 John Paul Jones Circle, Suite 1100, Portsmouth, VA 23708-2103, DSN 864-5500, commercial (757) 363-5500, fax (757) 444-3672.

b. For measurement surveys for shipboard RF emitting systems, contact Systems Electromagnetic Effects Branch (Code J-52), Naval Surface Warfare Center Dahlgren Division, 17320 Dahlgren Road, Dahlgren, VA 22448-5100, DSN 249-8594, commercial (540) 653-8594, fax (540) 653-7494.

c. For site certification and measurement surveys for shore-based RF emitting systems, contact Space and Naval Warfare Systems Center (SPAWARSYSCEN) Charleston (Attn: Code 323), P.O. Box 190022, North Charleston, SC 29419-9022, DSN 588-5372, or commercial (843) 974-5372. For shore facilities within PACNAVFACENGCOM geographical region, contact Space and Naval Warfare Systems Activity Pacific (SPAWARSYSACT PAC) (Attn: Code - D915), 675 Lehua Avenue, Pearl City, HI 96782-3356, DSN 315-474-7330, commercial (808) 474-7330 or bkutara@spawar.navy.mil.

d. For RF bio-effects and medical research issues, or assistance in evaluating personnel overexposure incidents, contact the Naval Health Research Center-Detachment Brooks AFB, 8301 Navy Road, Brooks AFB, TX 78235-5365, DSN 240-4699, commercial (210) 536-4699, fax (210) 536-6439.

e. For guidance on RF exposure limits and health issues, contact the Non-Ionizing Radiation Health Branch, Bureau of Medicine and Surgery (MED 212), 2300 E Street NW, Washington DC 20372-5300, DSN 762-3444, commercial (202) 762-3444, fax (202) 762-0931.

CHAPTER 23

ERGONOMICS PROGRAM

2301. Background and Discussion

a. Ergonomics is the field of study that involves the application of knowledge about physiological, psychological and biomechanical capacities and limitations of the human body. This knowledge is applied in the planning, design, and evaluation of work environments, jobs, tools and equipment to enhance worker performance, safety and health. Ergonomics is essentially fitting the workplace to the worker.

b. This program seeks to prevent injuries and illnesses by applying ergonomic principles to identify, evaluate and control ergonomic risk factors for work-related musculoskeletal disorders (WMSDs). WMSDs are defined as a class of disorders involving damage to muscles, tendons, tendon sheaths, and related bones, muscles, and nerves. They may also be known more specifically as repetitive strain injuries (RSI); Cumulative Trauma Disorders (CTDs) and Over-use Syndrome. WMSDs result from the cumulative effect of repeated traumas associated with specific workplace risk factors. Ergonomic risk factors include but are not limited to:

(1) Physical or biomechanical stress induced by excessive movement such as prolonged typing, assembling components, and repeated hand tool usage.

(2) Sustained positions such as standing or holding a body part away from the body for long periods.

(3) Awkward or unsupported postures such as working with the back bent forward, kneeling, or stooping.

(4) Excessive vibration from powered hand tools, vehicles, or other equipment.

(5) Exertions associated with force caused by frequent or heavy lifting, pushing, grasping, pulling, or carrying of heavy or cumbersome objects.

(6) Compression or contact stress caused by resting against the edge of a work surface or grasping sharp edges like hand tools.

(7) Physiological stress induced by heat, cold, use of personal protective equipment, shift work, extended work schedules; or excessive physical activity without adequate work breaks.

When present for sufficient duration, frequency, or magnitude, these risk factors may contribute to WMSDs. In addition, personal risk factors, such as, physical conditioning, existing health problems, gender, age, work technique, hobbies and organizational factors (e.g. job autonomy, quotas, deadlines) contribute to the development of WMSDs.

2302. Management Commitment

a. A successful ergonomic program cannot be implemented without commitment by the commanding officer, or officer in charge, to resource and support worker and staff efforts to control ergonomic risk factors and reduce associated injury. Aggressive, visible, and coordinated management actions are necessary to prevent WMSDs, control costs related to these injuries, and improve mission readiness.

2303. Employee Involvement

a. Employee involvement and feedback are essential to identify ergonomic hazards and develop an effective means for their abatement. A command ergonomic program shall include worker involvement to assist in ergonomic hazard identification.

(1) If the command has a safety and health committee, the committee shall review and analyze ergonomic problem areas and recommend corrective actions.

(2) The command may form worker-based teams to identify ergonomic problems, analyze risk factors, and develop solutions. Civilian best business practices reports and military studies have proven worker-based teams to be extremely effective in controlling ergonomic risk factors and reducing injury.

2304. Process Review and Measurement

a. Each activity shall include a self-assessment of its ergonomic program as part of the Process Review and Measurement System (PR&MS).

b. Each activity shall conduct a periodic analysis of WMSD reportable and recordable injury and illness data from OPNAV 5102/6 or an equivalent database or log. Refer to paragraph 1409 of this instruction for guidance on completing this form.

c. WMSD analyses should include specific departments, codes, or operations experiencing WMSDs to determine where there is greater risk for injury. An accurate trend analysis for WMSDs should also include, but is not limited to, the following:

(1) Body part involved

(2) Specific type of injury/illness (e.g.: BLS code, medical diagnosis)

(3) Number of known WMSD injuries and illnesses or determine rate of WMSD within a defined population

(4) Number of lost workdays due to WMSD injury and illness or determine rate within a defined population

(5) Description of job(s) to include ergonomic risk factors

(6) Cost of treatment (if known)

d. An activity should consider observations made during safety inspections and other factors, such as absenteeism, high personnel turnovers, fitness and age of workers in the identifi-

cation of ergonomic risk factors. The command may also elect to survey personnel in occupations known or suspected to have high risks to determine if they have experienced unreported warning signs or injuries.

e. Additional measures and metrics to assess and monitor the ergonomic program may be developed by each activity as necessary to adequately conduct more detailed analyses.

2305. Job Task Analysis

a. Activities shall identify ergonomic risk factors as part of, or in conjunction with, workplace inspections required by chapter 9 and industrial hygiene surveys required by chapter 8. Risk factors to consider include awkward posture, sustained positions, excessive force, excessive repetition, contact stress, segmental or whole body vibration, unsafe bending, twisting, over-reaching, overhead work, excessive pinch gripping and overexertion.

b. Activities shall use appendix 23-A for the following situations:

(1). Analysis of a task or operation attributable to a WMSD.

(2.) Analysis of a task or operation identified as causing muscular pain or joint pain.

(3.) Analysis of a task or operation identified as causing numbness or tingling of any body part.

(4.) Analysis of a task or operation identified as causing extreme discomfort or muscular fatigue.

(5.) Analysis of repetitive motion tasks and operations considered significant by the activity.

(6.) As the initial analysis conducted by a worker-based team.

(7.) New analysis of jobs, tasks, operations, or workstations modified due to ergonomic concerns.

c. The activity shall review the identified risk factors in appendix 23-A and determine what action is required to eliminate the risk factor. There may be situations where action may not be deemed necessary after thorough analysis. If no action is taken, the risk factor analysis and decision rationale shall be documented in writing and kept on file for at least 5 years.

NOTE:

The Job Requirements and Physical Demands survey (JRPD) is an additional ergonomic tool that may be used by trained safety and occupational health personnel to identify jobs with ergonomic risk factors, employee discomfort, and assess ergonomic stressors. The JRPD may be used as a follow-up tool to Appendix 23-A or independently to quantify ergonomic risks and prioritize projects. JRPD information may be provided through the resource list in appendix 23-B.

d. Ergonomic assessments shall be assigned Risk Assessment Codes (RAC) consistent with chapters 9 and 12.

2306. Command Assistance

a. The principles and application of ergonomics is a multidisciplinary applied science encompassing medical, engineering, industrial hygiene, and safety fields. It is recognized that activity personnel may not have the experience necessary to identify, analyze and resolve all ergonomic situations. When the safety manager or other internally available staff identifies ergonomic issues beyond the scope of their capabilities, commands should seek assistance from the resource list in appendix 23-B.

2307. Hazard Prevention and Control

a. The preferred priorities for corrective actions of ergonomic risk factors include: ergonomic risk elimination, engineering controls, substitution of materials/tools/ equipment, improved work practices and administrative controls. Examples of administrative controls are: lifting restrictions, adjustment of work-rest cycles, slowing work pace, and job rotation.

b. Activities shall not use back support belts or wrist splints as safety protective equipment. These devices are considered medical appliances, and must be prescribed by a credentialed health care provider who shall assume responsibility for proper fit of the device, treatment, monitoring and supervision of the wearer.

c. Engineering Controls. Engineering controls are the preferred mechanism for controlling ergonomic risk factors. These controls may entail redesign of workstations, work methods, and tools to reduce or eliminate the risk factors. References 23-1 through 23-7 contain detailed guidance on principles and techniques for implementing engineering controls.

d. Workstation Design. Workstations should be easily adjustable to accommodate the person/persons performing a specific task or job, not just the average worker. Generally, design limits are based upon a range from the 5th percentile female to the 95th percentile male values for critical body dimensions. The work-space should be large enough to allow the full range of required movements. Anthropometric data and design recommendations for military equipment and facilities can be found in reference 23-2.

e. Illumination. This reference also includes design criteria for task illumination, vibration levels, noise levels and ventilation. Adequate illumination for highly visual tasks may be one of the primary concerns for some workstations. Both the quantity and the quality of light are important. Glare, contrast, and shadows influence lighting quality and can seriously diminish performance. Illumination design guidance may be found in reference 23-2. Existing illumination problems should be corrected using guidance from references 23-3 and 23-4 or other professional references that meet or exceed the references of this chapter.

f. Design of Work Methods. Analyses of work processes, that requires consideration of worker posture and repetition rate, should be supplemented by addressing the force or exertion required of workers. Redesign of work methods should also consider any changes in the time required to perform tasks. WMSD reduction benefits may not be realized if ergonomic related steps are added to the process, but sufficient time is not allowed to perform such tasks.

g. Tool Design and Handles. Properly designed tools and handles increase worker productivity by extending and amplifying manipulative abilities and protecting the workers against concentrated forces. Activities shall pay proper attention to the selection and design of tools and workstation layouts to minimize WMSD risks and back injuries. Activities shall select or design tools and handles to minimize or eliminate the following risk factors for both male and female workers:

- (1.) High contact forces and static loading
- (2.) Extreme or awkward joint positions
- (3.) Repetitive action of the fingers, wrist and arm
- (4.) Tool vibration (see reference 23-10)
- (5.) Excessive force or grip strength requirements.

NOTE:

Activities can accomplish many workstation and job procedure designs using an approach to ergonomics based on an understanding of human anatomy and physiology without resorting to time-consuming and expensive measurements. For example, activities should select hand tools to distribute the applied forces over a wide area of the hand regardless of the job being performed. Sometimes it is possible, on a small scale, to obtain sample tools from manufacturers for trial periods to allow employees and management decide which tool is the best based upon comfort, usability, utility, durability, price and productivity. This process will increase product acceptance and take advantage of worker experience and knowledge.

h. Administrative Controls. Activities shall only consider administrative controls after engineering controls or process redesign are not feasible. Administrative controls include:

- (1.) Rotating employees to jobs with dissimilar physical requirements.
- (2.) Establishing adequate work/ rest schedules.
- (3.) Where heavy objects must be handled, activities may calculate a recommended weight limit using the methods contained in references 23-2 and 23-7 to specify the maximum lift an unassisted individual should attempt for one or two handed lifts. The maximum lift an unassisted individual should attempt is 51 pounds under ideal lifting conditions.
- (4.) In situations where heavy lifts cannot be avoided, establish a policy to include the assistance of other personnel in the lift.
- (5.) Label the actual weight of any object that a worker needs to lift or carry.
- (6.) Ensure that material in storage is stacked off the floor and placed at no less than knuckle height.

i. Planned Facility Modifications and Equipment Purchases. When activities develop plans for new or modified facilities, processes, jobs, tasks, materials and equipment, they shall analyze such plans for opportunities to eliminate or reduce ergonomic hazards. For example, when purchasing office furniture to equip new facilities or replace existing equipment, activities should consider selecting equipment that allows easy adjustment of chair height, keyboard position and video display screen position. Reference 23-2 provides further information on this topic.

j. Some projects developed to address ergonomic hazards that exceed the funding capability of local organizations may qualify for centrally-managed Navy occupational safety and health (NAVOSH) funds. Applications for these funds should be submitted per the procedures of chapter 12, Hazard Abatement Program.

2308. Ergonomic Training

a. A key to maintaining an effective ergonomics program is the proper training of managers, supervisors, professional staff, ergonomic teams and employees. General ergonomics training shall be provided to all employees as applicable to the employee's role in the workplace. Periodic refresher training should be provided at command discretion. Recommended training topics for various personnel are provided in appendix 23-C.

b. OSH professional staff responsible for conducting the ergonomics program shall receive formal training on the recognition and control of ergonomic risk factors in Navy work places. The Naval Occupational Safety and Health and Environmental Training Center (NAVOSH-ENVTRACEN) provides the Navy Ergonomics Program course (A-493-0085) to train OSH professional staff and other personnel involved in ergonomic assessments, control of ergonomic hazards, and program management.

2309. Medical Program

a. Cognizant medical commands shall support line activity initiatives to reduce WMSDs by providing occupational medicine services as described in section 0807. Occupational medicine professionals shall collaborate with commands, for the purpose of conducting work place visits to obtain knowledge of operations, work practices and transitional-duty jobs to provide ergonomics assessments, and facilitate recovery of individuals with WMSDs.

b. Physical Standards Pre-placement and Periodic Examinations. For positions that involve significant risk for WMSDs, the command, human relations office and cognizant medical command shall review the presence and adequacy of existing physical requirements of the job and make recommendations for improvement to the command.

NOTE:

As warranted, consistent with the provisions of 5CFR339.301 "an agency may require an individual who has applied for or occupies a position which has medical standards or physical requirements or which is part of an established medical evaluation program, to report for a medical examination:

(1) Prior to appointment or selection (including reemployment on the basis of full or partial recovery from a medical condition);

(2) On a regularly recurring, periodic basis after appointment; or

(3) Whenever there is a direct question about an employee's continued capacity to meet the physical or medical requirements of a position.

(4) An agency may require an employee who has applied for or is receiving continuation of pay or compensation as a result of an on-the-job injury or disease to report for an examination to determine medical limitations that may affect placement decisions.”

c. Health Education for Ergonomic Hazards. Each cognizant medical command shall collaborate with and assist the employing command in providing health education and lifestyle modification information to individuals with WMSD symptoms and for all identified workers at high risk for WMSDs.

d. Recovery of Injured Employees. The Navy encourages cognizant medical commands to offer medical advice, counseling and physical therapy services to rehabilitate employees with WMSDs. Where such services are not available from the cognizant medical command, activities may contract for physical therapy services, provided the cognizant medical command has an opportunity to review the procurement specification prior to solicitation and provide professional medical oversight of the contract.

e. Monitoring for Trends. Health care professionals shall periodically, e.g., monthly, review occupationally related acute care visits to monitor WMSD trends.

2310. Responsibilities

a. Echelon Two Commands shall:

(1) Provide guidance and assistance as necessary to subordinate commands on program development and implementation.

(2) Coordinate program implementation among similar activity types; disseminate information on process improvements to eliminate duplication of effort.

b. Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) shall take appropriate actions to increase the availability of ergonomically-designed furnishings, equipment and tools through the supply system. Conversely, commands shall take efforts to purge the supply system of ergonomically incorrect equipment such as back belts.

c. Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) shall:

(1) Perform comprehensive ergonomic risk analysis of WMSD factors as part of the facility design process.

(2) Review plans for new or modified facilities, processes, jobs, tasks, tools, materials and equipment to ensure that changes will reduce or eliminate ergonomic risk factors for WMSDs.

(3) Develop and implement a Navy-wide program to minimize ergonomic stress through facility design, equipment selection and maintenance of facilities, equipment and tools.

d. Chief of Naval Education and Training (CNET) shall provide OSH ergonomics training consistent with requirements of this chapter.

e. Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Develop technical and administrative guidance for the medical aspects of the ergonomics program.

(2) Provide medical support by developing therapy and treatment programs, including provision of physical therapists who perform in-house physical therapy to injured employees, serve as part of the education team providing training to prevent injuries and ergonomically evaluate return-to-work capabilities.

f. Commander, Naval Safety Center shall conduct a mishap analysis program, reviewing available data for a 5-year period, to identify WMSDs by activity and command, including number or rate of WMSD, injury/illness type, and body part.

g. Commanding Officers of Medical Commands, Activities, and Treatment Facilities shall:

(1) Monitor WMSD trends using appropriate records.

(2) Verify low risk of transitional duty assignments.

(3) Provide health education for personnel with a past history or current symptoms of WMSD and education on preventive measures for high-risk individuals.

(4) Assist line activities in the medical recovery of WMSD individuals and the implementation of transitional duty programs.

(5) Assist commands in the development of physical requirements for positions.

h. Commanders, Commanding Officers and Officers in Charge shall:

(1) Annually, analyze injury and illness records and other pertinent information to determine the need for ergonomic improvements and corrective actions within the activity.

(2) Identify and budget resources to administer an effective ergonomics program consistent with the guidance in this chapter.

(3) Consider shift-work related stressors when determining scheduling policies. Appendix 23-D provides guidance for shift work that does not involve military watch standing or military operational environments.

(4) Where rehabilitative services are not available from the cognizant medical command, activities may contract for such services, provided the cognizant medical command has an opportunity to review the procurement specification prior to solicitation and provide professional medical oversight of the contract.

Chapter 23

References

- 23-1. Department of Defense, Military Standard, Human Engineering Design Criteria for Military Systems, Equipment and Facilities, MIL-STD-1472F, 23 August 1999, (NOTAL)
- 23-2. Anthropometry of US Military Personnel, DOD-HDBK 743A, 13 Feb 1991.
- 23-3. Illuminating Engineering Society, IES Lighting Handbook, 9th ed., New York, 2000 (NOTAL)
- 23-4. American National Standards Institute/Illuminating Engineering Society of North America (ANSI/IES) RP-7-1991, American National Standard Practice for Industrial Lighting (NOTAL)
- 23-5. American National Standards/ Human Factors Society (ANSI/HFS) 100-1998 American National Standard for Human Factors Engineering of Visual Display Terminal Workstations (NOTAL).
- 23-6. NIOSH Publication No. 97-117 of March 97, Elements of Ergonomics Programs – A Primer Based on Workplace Evaluations of Musculoskeletal Disorders (NOTAL)
- 23-7. National Institute for Occupational Safety and Health, A Work Practices Guide for Manual Lifting. Tech. Report No. 94-110 (1994), U.S. Department of Health and Human Services, Cincinnati, OH. (NOTAL)




Appendix 23-A

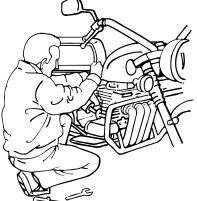

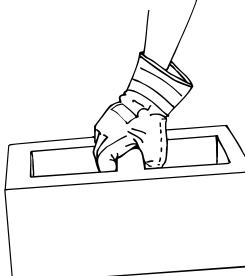
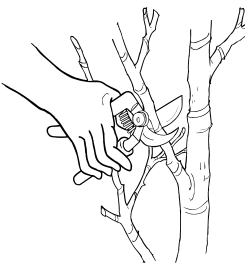


Ergonomic Survey Tool





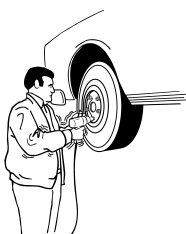

This checklist is an ergonomic screening tool for typical work activities. Typical work activities are a regular and foreseeable part of the job, occur more than 1 day per week and more frequently than 1 week per year. This checklist determines if a typical work activity has noteworthy ergonomic stressors present for sufficient duration. A 'caution zone' job is defined as having one or more boxes checked in the checklist below.

A job found to be in the "caution zone" should be evaluated further by the command or through outside assistance. If possible, further analysis with the Job Requirements and Physical Demand (JRPD) survey is recommended. JRPD information may be obtained through the sources listed in appendix 23-B. Jobs not determined to be 'caution zone' should be periodically reevaluated since changes in the work environment may create new ergonomic stressors.

Checklist source: Washington State Department of Labor and Industries

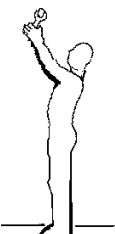
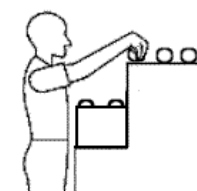

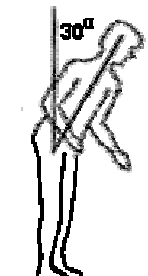
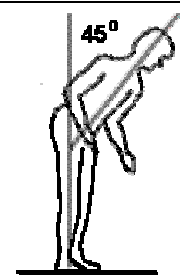
Job Position Evaluated:	Date:	No. of employees in these jobs?	Employee Name	Reviewer Name
Caution Zone Checklist Use one sheet for each position evaluated.				
Movements or postures that are a regular and foreseeable part of the job, occurring more than one day per week, and more frequently than one week per year.		If done in this job position  the box		
Awkward Posture			Comments/Observations	
	1. Working with the hand(s) above the head, or the elbow(s) above the shoulders more than 2 hours total per day.			
	2. Working with the neck or back bent more than 30 degrees (without support and without the ability to vary posture) more than 2 hours total per day.			

	<p>3. Squatting more than 2 hours total per day.</p>	
	<p>4. Kneeling more than 2 hours total per day.</p>	
High Hand Force		Comments/Observations
	<p>5. Pinching an unsupported object(s) weighing 2 or more pounds per hand, or pinching with a force of 4 or more pounds per hand, more than 2 hours per day (comparable to pinching half a ream of paper).</p>	
	<p>6. Gripping an unsupported object(s) weighing 10 or more pounds per hand, or gripping with a force of 10 or more pounds per hand, more than 2 hours total per day (comparable to clamping light duty automotive jumper cables onto a battery).</p>	
Highly Repetitive Motion		Comments/Observations
	<p>7. Repeating the same motion with the neck, shoulders, elbows, wrists, or hands (excluding keying activities) with little or no variation every few seconds, more than 2 hours total per day.</p>	
	<p>8. Performing intensive keying more than 4 hours total per day.</p>	

Repeated Impact		Comments/Observations
	9. Using the hand (heel/base of palm) or knee as a hammer more than 10 times per hour, more than 2 hours total per day.	
Heavy, Frequent or Awkward Lifting (A simple scale can be used to determine the weight of materials)		Comments/Observations
	10. Lifting object weighing more than 75 pounds once per day or more than 55 pounds more than 10 times per day.	
	11. Lifting objects weighing more than 10 pounds if done more than twice per minute, more than 2 hours total per day.	
	12. Lifting objects weighing more than 25 pounds above the shoulders, below the knees or at arms length more than 25 times per day.	
Moderate to High Hand-Arm Vibration (Closely estimate or obtain the vibration value of the tool in use)		Comments/Observations
	13. Using impact wrenches, carpet strippers, chain saws, percussive tools (jack hammers, scalers, riveting or chipping hammers) or other tools that typically have high vibration levels, more than 30 minutes total per day.	
	14. Using grinders, sanders, jigsaws or other hand tools that typically have moderate vibration levels more than 2 hours total per day.	



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For each "caution zone job" identified, find any physical risk factors that apply using the Follow-up checklist. Reading across the page, determine if all of the conditions are present in the work activities. If they are, a WMSD hazard exists and must be reduced below the hazard level or to the degree technologically and economically feasible

Follow-up Physical Risk Factor Check List			
Awkward Posture			
Body Part	Physical Risk Factor	Duration	Visual Aid
Shoulders	Working with the hand(s) above the head or the elbow(s) above the shoulder(s)	More than 4 hours total per day	
	Repetitively raising the hand(s) above the head or the elbow(s) above the shoulder(s) more than once per minute	More than 4 hours total per day	
Neck	Working with the neck bent more than 45° (without support or the ability to vary posture)	More than 4 hours total per day	
Back	Working with the back bent forward more than 30° (without support, or the ability to vary posture)	More than 4 hours total per day	
	Working with the back bent forward more than 45° (without support or the ability to vary posture)	More than 2 hours total per day	

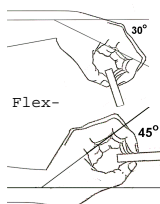


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Awkward Posture (continued)			
Body Part	Physical Risk Factor	Duration	Visual Aid
Knees	Squatting	More than 4 hours total per day	
	Kneeling	More than 4 hours total per day	

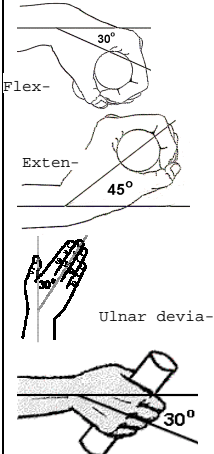
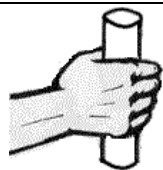
Check (✓) here if this is a WMSD hazard

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High Hand Force				
Body Part	Physical Risk Factor	Combined with	Duration	Visual Aid
Arms, wrists, hands	Pinching an unsupported object(s) weighing 2 or more pounds per hand, or pinching with a force of 4 or more pounds per hand (comparable to pinching half a ream of paper)	Highly repetitive motion	More than 3 hours total per day	
		Wrists bent in flexion 30° or more, or in extension 45° or more, or in ulnar deviation 30° or more	More than 3 hours total per day	 
		No other risk factors	More than 4 hours total per day	

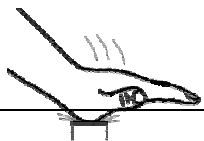
Check (✓) here if this is a WMSD hazard


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High Hand Forces				
Body Part	Physical Risk Factor	Combined with	Duration	Visual Aid
Arms, wrists, hands	Gripping an unsupported object(s) weighing 10 or more pounds per hand, or gripping with a force of 10 pounds or more per hand (comparable to clamping light duty automotive jumper cables onto a battery)	Highly repetitive motion	More than 3 hours total per day	
		Wrists bent in flexion 30° or more, or in extension 45° or more, or in ulnar deviation 30° or more	More than 3 hours total per day	
		No other risk factors	More than 4 hours total per day	

Check (✓) here if this is a WMSSD hazard



Highly Repetitive Motion				
Body Part	Physical Risk Factor	Combined with	Duration	
Neck, shoulders, elbows, wrists, hands	Using the same motion with little or no variation every few seconds (excluding keying activities)	No other risk factors	More than 6 hours total per day	Check (✓) here if this is a WMSD hazard <input type="checkbox"/>
	Using the same motion with little or no variation every few seconds (excluding keying activities)	Wrists bent in flexion 30° or more, or in extension 45° or more, or in ulnar deviation 30° or more AND High, forceful exertions with the hand(s)	More than 2 hours total per day	<input type="checkbox"/>
	Intensive keying	Awkward posture, including wrists bent in flexion 30° or more, or in extension 45° or more, or in ulnar deviation 30° or more	More than 4 hours total per day	<input type="checkbox"/>
		No other risk factors	More than 7 hours total per day	<input type="checkbox"/>
Repeated Impact				
Body Part	Physical Risk Factor	Duration	Visual Aid	Check (✓) here if this is a WMSD hazard
Hands	Using the hand (heel/base of palm) as a hammer more than once per minute	More than 2 hours total per day		<input type="checkbox"/>

Knees	Using the knee as a hammer more than once per minute	More than 2 hours total per day	



Heavy, Frequent or Awkward Lifting

This analysis only pertains if you have "caution zone jobs" where employees lift 10 lbs. or more

Step 1

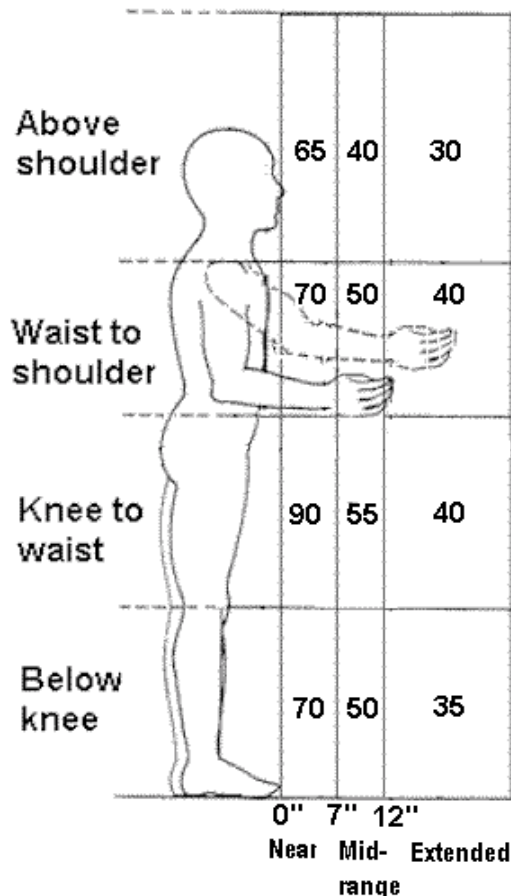
Find out the actual weight of objects that the employee lifts.
Actual Weight = _____ lbs.

Step 3

Find the Limit Reduction Modifier. Find out how many times the employee lifts per minute and the total number of hours per day spent lifting. Use this information to look up the Limit Reduction Modifier in the table below.

Step 2

Determine the Unadjusted Weight Limit. Where are the employee's hands when they begin to lift or lower the object? Mark that spot on the diagram below. The number in that box is the Unadjusted Weight Limit in pounds.



How many lifts per minute?	For how many hours per day?		
	1 hr or less	1 hr to 2 hrs	2 hrs or more
1 lift every 2-5 mins.	1.0	0.95	0.85
1 lift every min	0.95	0.9	0.75
2-3 lifts every min	0.9	0.85	0.65
4-5 lifts every min	0.85	0.7	0.45
6-7 lifts every min	0.75	0.5	0.25
8-9 lifts every min	0.6	0.35	0.15
10+ lifts every min	0.3	0.2	0.0

Note: For lifting done less than once every five minutes, use 1.0

Step 4

Limit Reduction Modifier: _____
Calculate the Weight Limit. Start by copying the Unadjusted Weight Limit from Step 2.

Unadjusted Weight Limit: = _____ lbs.

If the employee twists more than 45 degrees while lifting, reduce the Unadjusted Weight Limit by multiplying by 0.85. Otherwise, use the Unadjusted Weight Limit

Twisting Adjustment: = _____

Adjusted Weight Limit: = _____ lbs.

Multiply the Adjusted Weight Limit by the Limit Reduction Modifier from Step 3 to get the Weight Limit.

X

Limit Reduction Modifier: _____

Weight Limit: = _____ lbs.

Step 5

Is this a hazard? Compare the Weight Limit calculated in Step 4 with the Actual Weight lifted from Step 1. If the Actual Weight lifted is greater than the Weight Limit calculated, then the lifting is a WMSD hazard and must be reduced below the hazard level or to the degree technologically and economically feasible.

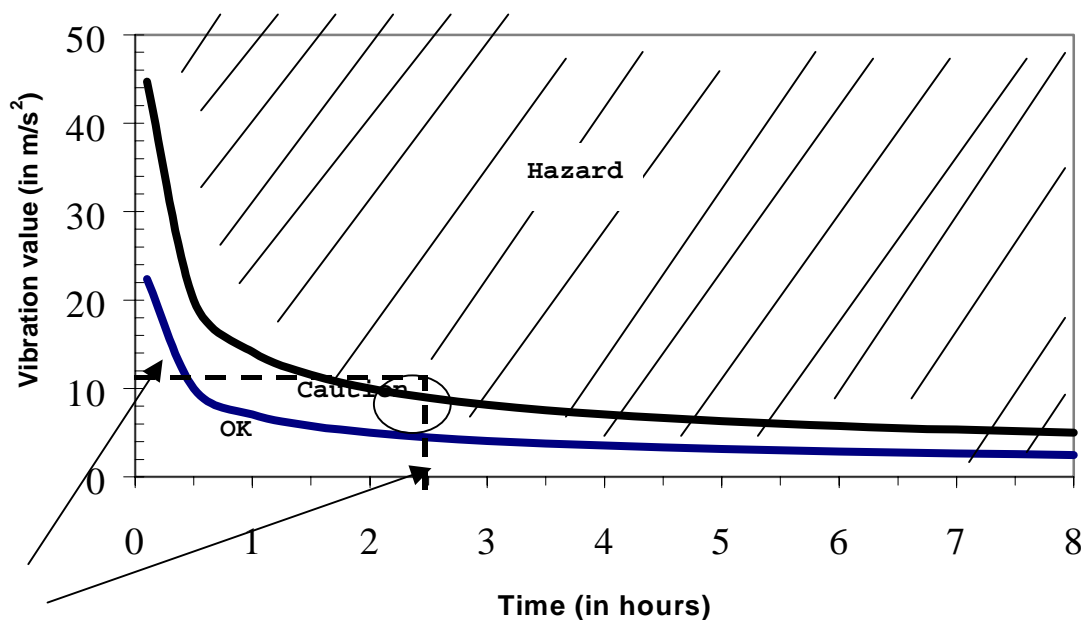
Note: If the job involves lifts of objects with a number of different weights and/or from a number of different locations, use Steps 1 through 5 above to:

1. Analyze the two worst case lifts -- the heaviest object lifted and the lift done in the most awkward posture.
2. Analyze the most commonly performed lift. In Step 3, use the frequency and duration for all of the lifting done in a typical workday.

Hand-Arm Vibration

Use the instructions below to determine if a hand-arm vibration hazard exists.

- Step 1. Find the vibration value for the tool. (Get it from the manufacturer, look it up at this web site: <http://umetech.niwl.se/vibration/HAVHome.html>, or you may measure the vibration yourself). The vibration value will be in units of meters per second squared (m/s^2). On the graph below find the point on the left side that is equal to the vibration value.
- Step 2. Find out how many total hours per day the employee is using the tool and find that point on the bottom of the graph.
- Step 3. Trace a line in from each of these two points until they cross.
- Step 4. If that point lies in the crosshatched "Hazard" area above the upper curve, then the vibration hazard must be reduced below the hazard level or to the degree technologically and economically feasible. If the point lies between the two curves in the "Caution" area, then the job remains as a "Caution Zone Job." If it falls in the "OK" area below the bottom curve, then no further steps are required.



Example:

An impact wrench with a vibration value of 12 m/s^2 is used for $2\frac{1}{2}$ hours total per day. The exposure level is in the Hazard area. The vibration must be reduced below the hazard level or to the degree technologically and economically feasible.

Note: The caution limit curve (bottom) is based on an 8-hour energy-equivalent frequency-weighted acceleration value of 2.5 m/s^2 . The hazard limit curve (top) is based on an 8-hour energy-equivalent frequency-weighted acceleration value of 5 m/s^2 .

**Appendix 23-B
Ergonomics Resources**

Naval Facilities Engineering Command ergonomic support

Ergonomic Program Manager
SOUTHWESTNAVFACENGCOM
1220 Pacific Hwy
San Diego, CA 92132-5190
Ph: 619-532-2536, DSN: 522-2536
Fax: 619-532-1195

Bureau of Medicine and Surgery (BUMED) ergonomic support

Navy Environmental Health Center
620 John Paul Jones Circle
Suite 1100
Portsmouth, VA 23708-2103
Phone: (757) 462-5500
After Hours: (757) 621-1967
DSN: 253-5500

Contact: Industrial Hygiene or Occupational Medicine directorates

Chief of Naval Operations (N45) ergonomic resource

<http://www.navosh.net/ergonomics>

This web site contains ergonomic best practice examples, public domain documents, government documents, technical information, and links to other ergonomic sites. This site will also have information for the Job Requirements and Physical Demands Survey (JRPD) which is an ergonomic tool to enable Safety and Occupational Health professionals identify ergonomic risk factors and prioritize problem areas.

Appendix 23-C

Recommended Ergonomic Training

General orientation training for new employees

- (1) Ergonomic risk factors related to the employee's job.
- (2) Back injury prevention
- (3) Early symptoms and warning signs of WMSD. Reporting of signs and symptoms. The basic structures of the body, how they function together and how they are affected by WMSDs
- (4) Correct use of ordinary hand tools to include proper body position. Selection and use of ergonomically designed tools available in the workplace.
- (5) Workstation design and adjustment.

Personnel with back injury risk factors. Activities should provide initial back injury prevention training for personnel with jobs having identified risk factors for back injury. As a minimum, this training should include:

- (1) Basic anatomy and physiology of the spine and neck.
- (2) Warning signs of back injury.
- (3) Biomechanics of lifting and proper lifting techniques
- (4) Back injury risk factors on and off the job

Manager. Managers should receive sufficient training on ergonomic issues to effectively carry out their responsibilities for the health and safety of their employees.

- (1) Proper maintenance of facilities, equipment and tools as a technique to minimize ergonomic stress
- (2) The elements of an effective case management process
- (3) Safe and unsafe ergonomic behaviors of employees
- (4) Forming worker based teams and the benefits of a team approach to ergonomics.
- (5) Ergonomic policy of the Navy, Department of Defense, and the Occupational Safety and Health Administration (OSHA).

Supervisors. Supervisors with employees subject to identified ergonomic risk factors should receive the following training:

1. Recognition of WMSD signs and symptoms.
2. WMSD reporting.
3. Ergonomic risk factors, such as, awkward postures, static positions, external forces, repetitive motion and lifting hazards.
4. Methods to reduce or eliminate ergonomic risk factors.
5. How to obtain ergonomic assistance.

Collateral duty personnel. Activities without full time professional OSH managers may assign collateral duty personnel to administer an ergonomics program. At a minimum their training should include:

1. How to manage an ergonomics program
2. How to identify ergonomic hazards.
3. Measures to reduce or eliminate ergonomic hazards.
4. How to evaluate the effectiveness of ergonomics programs and controls.

Facility Engineers, Architects, and Designers. Engineering staffs responsible for planning, designing, or writing specifications for equipment, tools, jobs, tasks and processes should receive formal training on methods of eliminating or reducing ergonomic risk factors.

Appendix 23-D

Ergonomic Considerations for Shift Workers

A. Background

Shift work is a risk factor for several medical disorders, poor performance, and decreased vigilance in the job. It presents these problems because of its conflict with normal human biological rhythms, particularly the sleep/wake rhythm and the temperature rhythm, which direct the body to sleep at night.

The problem with night work and transmeridian jet travel is that normal time cues are shifted faster than the human circadian rhythm can adjust. For example, it takes at least 2 days for the sleep/wake cycle to adjust to a 6-hour transmeridian flight. More time is required for body temperature and performance rhythms to adjust. Two to 3 weeks are required for complete adjustment of the temperature rhythm to a complete day-night reversal (a 12-hour time shift). Because different biological rhythms adjust at different rates, not only does the person become desynchronized with respect to external time cues, but individual rhythms no longer have a normal phase relationship.

The most frequent problem for night workers, experienced by at least 60 percent of these workers, is chronic sleep deprivation due to not only fewer total hours of sleep, but disrupted sleep as well. Such sleep deprivation in night workers can be severe. Night work has also been shown to be disruptive with respect to family and social interactions. Shift-workers are at higher risk for psychosocial problems as well as family problems, including divorce.

Personnel with a history of rigid sleep requirements, strong "morning types," and older workers (over 45) are more apt to have difficulty adjusting to night work. Five to 20 percent of night workers will suffer from shift maladaptation syndrome, which can only be treated by removal from the night shift.

B. Shift Workers Scheduling Guidelines

Supervisors who prepare schedules for night shifts must consider the potential for scheduling practices to affect the ability of individuals to perform assigned tasks safely.

Unless prescribed by current labor contracts, schedules must be rotated in the forward (clockwise) direction. This direction is best because the human clock runs slow with respect to the 24-hour solar day and, therefore, adjusts faster to a phase delay than to a phase advance. The following additional guidelines regarding scheduling of night workers, including workers on rotating schedules that include night work, are recommended for consideration when preparing schedules.

- (1) At least 48 hours off should follow the night shift rotation.
- (2) Overtime should be avoided for personnel adjusting to time shifts.

C. Medical Surveillance for Shift Workers

Being assigned night shift work, by itself, does not obligate an employee to undergo a medical evaluation. Where medical evaluations are required, due to positions covered by medical standards, the requirement to work night shifts should be indicated by the appointing officer on the SF-78 by circling item B-28, "Protracted or irregular hours of work," to alert the examining physician to evaluate fitness to work night shifts or recommend appropriate restrictions.

Supervisors may request medical qualification information from workers who demonstrate persistent performance problems or increased absenteeism after beginning night work. Even workers who have been able to tolerate night work for years may begin to show signs and symptoms of shift work intolerance with increasing age.

Pre-employment evaluation of workers who will be involved in night work and surveillance of shift work employees require attention to the following medical conditions that may impair an individual's ability to perform assigned tasks safely or be aggravated by shift work schedules:

1. Diabetes mellitus, epilepsy, cardiovascular disease, asthma, peptic ulcer, irritable bowel syndrome, or use of medication with circadian variation in effectiveness. The examining physician must determine when such medical conditions are severe enough to warrant medical disqualification for night work.

2. Supervisors are cautioned to consult Federal Personnel Manual (FPM) chapter 339 governing medical qualification determinations.

D. Additional References.

1. LaDou J., Occupational and Environmental Medicine, 2nd ed., pp 592-3, Appleton and Lange, 1997.
2. Rom W.N., Environmental and Occupational Medicine, 3rd ed., pp 1173-7, Lippincott Williams and Wilkins, 1998.
3. Scott A.J., "Shift Work and Health", Primary Care, 1 Dec 2000, 1057-79.

CHAPTER 24

ENERGY CONTROL PROGRAM (LOCKOUT/TAGOUT)

2401. Discussion

a. Purpose. This chapter establishes Navy policy and minimum procedures for locking out or tagging the sources of energy to equipment or systems under the requirements of reference 24-1 and the minimum performance standards of reference 24-2.

b. Scope and Application. The requirements of this chapter apply to the control of energy during servicing and maintenance of machinery and equipment ashore. These requirements apply only when the unexpected energizing or movement of machinery/equipment or the release of energy during the maintaining or servicing of such equipment/machinery could cause injury to personnel and/or property damage.

(1) This policy does not cover routine production operations unless:

(a) Operations require workers to remove or bypass a guard or other safety device.

(b) Operations require workers to place any part of their bodies into an area of the machine or equipment where work is actually performed upon the material being processed (point of operation) or where an associated danger zone exists during the machine operating cycle.

NOTE:

This chapter does not cover minor tool changes and adjustments and other minor servicing activities, which take place during normal production operations if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternate measures which provide effective protection.

(2) The requirements of this chapter do not apply to the following:

(a) Shipboard operations that are covered under references 24-3 and 24-4

(b) Equipment under the exclusive control of electrical utilization installations for the purpose of power generation, transmission and distribution, including related equipment for communication or metering, which are covered under references 24-5 and 24-6

(c) Exposure to electrical hazards from work on, near or with conductors or equipment in electrical utilization installations, which are covered under references 24-5 and 24-6

(d) Work on cord and plug-connected electrical equipment where exposure to the hazards of unexpected start-up of the equipment is controlled by unplugging the equipment, and the plug is under the exclusive control of the worker performing the servicing or maintenance

(e) Hot tap operations involving transmission and distribution systems for substances such as gas, steam, water or petroleum products performed on pressurized pipelines if:

- (1) Continuity of service is essential.
 - (2) Shutdown of the system is impractical.
 - (3) Documented procedures are followed and special equipment utilized to protect personnel.
- (f) Training evolutions ashore on shipboard tagout per references 24-3 and 24-4. However, the installation of equipment for such training is covered by this instruction.

2402. General Policy

All shore activities shall comply with the lockout/tagout requirements of reference 24-1, except as noted in paragraph 2401.

- a. Commands shall discipline any person(s), other than the original person(s) who installed the lockout/tagout device(s) or that person's supervisor, who removes a lockout/tagout device.
- b. When similar machines and/or equipment are covered with a single generic written procedure, the procedure shall list the types of equipment to which the operating procedure applies.
- c. Lockout, not tagout is the preferred method of energy control and commands shall use it ashore where feasible. Activities shall not use combination locks for lockout. No two lockout devices (locks) shall have the same key. No more than two keys shall exist for any lock. The worker shall maintain one key and the supervisor shall maintain the other in a location readily accessible in the event of an emergency.
- d. Both lockout and tagout devices shall indicate the identity of the employee applying the device(s). Tagout devices shall indicate the cognizant shop or code, the telephone number where the employee can be reached during working hours, his/her supervisor, date applied, and the machine, equipment or system component that is de-energized.
- e. Commands shall ensure that all training complies with reference 24-1, is specific to the activity, but need not include instruction on energy sources or means of isolation that are not applicable to the activity.

2403. Requirements for Contractors or Other Outside Agencies

Activities shall ensure contracts require the contractor or agency to:

- a. Submit a copy of instructions explaining the contractor's or agency's lockout/tagout program. In addition, the activity shall provide the contractor or agency with a copy of the lockout/tagout program instruction of the activity where the work is to be performed.
- b. Contractors must comply with the requirements of reference 24-7.

2404. Responsibilities

a. Commanders of Echelon Two and Other Headquarters Commands shall:

(1) Ensure development and implementation of lockout/tagout programs are per the guidance in this chapter for all systems and operations under their cognizance.

(2) As necessary, provide amplifying guidance to subordinate activities on command implementation of the lockout/ tagout program to ensure program consistency and effectiveness.

b. Chief of Naval Education and Training (CNET) shall:

(1) Incorporate lockout/tagout requirements into the NAVOSH & Hazardous Material Control and Management Navy Training Systems Plan.

(2) Develop a lockout/tagout training syllabus and related performance qualification standards to include the provisions of lockout/tagout.

(3) Provide specialized lockout/ tagout training where necessary.

(4) Integrate lockout/tagout principles and procedures into the curriculum of the Navy Supply Corps School (Athens, GA) and the Naval School Civil Engineer Corps Officers (Port Hueneme, CA).

(5) Serve as the central source for delivery and dissemination of information on Navy lockout/tagout training.

(6) Incorporate lockout/tagout information into the curriculum of all appropriate training courses.

c. Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) shall provide standard stock OSHA-compliant tags and locks for use by activities per the requirements of this chapter.

d. Commanders, Commanding Officers, and Officers in Charge shall:

(1) Develop and implement written plans and procedures for a lockout/tagout program that meet the policy of this chapter and the direction of reference 24-1.

(2) Initiate actions to identify and resolve deficiencies in the lockout/tagout budget and allocation of resources to bring about effective local program implementation.

(3) Ensure a current roster of trained and qualified employees who are authorized to work on hazardous energy systems and equipment is maintained.

e. Activity OSH Offices shall:

(1) Approve the equipment or applications where tagout may be used in place of lockout (and maintain a list of approvals) unless this responsibility is delegated to someone else by the commanding officer.

(2) Annually review compliance with the provisions of this chapter and any specific procedures developed as a result.

(3) Where lockout is not feasible, tagout may be used. Activities shall maintain a list of the type of equipment and applications. The official authorizing tagout will ensure compliance with the requirements of this chapter for use of tagouts to achieve equivalent protection to lockout systems.

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References

24-1. Title 29 Code of Federal Regulations (CFR) 1910.147 of 13 Feb 96, The Control of Hazardous Energy (lockout/tagout), latest revision, and Title 29 CFR 1910.332 of 6 Aug 90, Electrical-Safety-Related Work Practices, latest revision (NOTAL)

24-2. American National Standards Institute (ANSI) Standard Z244.1-1982, American National Standard for Personal Protection Lockout/Tagout of Energy Sources-Minimum Safety Requirements (NOTAL)

24-3. OPNAVINST 5100.19D CH-1 of 30 Aug 01, Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (NOTAL)

24-4. OPNAVINST 3120.32C of 11 Apr 94, Standard Organization and Regulations of the U.S. Navy

24-5. OPNAV P-45-117-6-98 of Jun 98, Electrical Safety Field Guide

24-6. MIL-HDBK 1025/12 of November 1998, Military Handbook for Safety of Electrical Transmission and Distribution Systems

24-7. EM385-1-1 of Oct 92, U.S. Army Corps of Engineers Safety and health Requirements Manual (NOTAL)

CHAPTER 25

POLYCHLORINATED BIPHENYLS (PCBs)

2501. Policy

a. Navy policy is to minimize the potential for polychlorinated biphenyl (PCB) exposure by substitution with non-PCB containing materials, using engineering and administrative controls and using appropriate personal protective equipment (PPE).

b. Occupational exposures to PCBs may arise from processes such as retrofilling PCB-containing electrical transformers, removing PCB-impregnated felts or gaskets or working with synthetic rubber, plasticizers or other materials that contain PCBs.

2502. Discussion

a. The Occupational Safety and Health Administration (OSHA) regulates workplace PCBs as air contaminants per reference 25-1. The Environmental Protection Agency (EPA) regulates environmental contamination involving PCBs under reference 25-2. The only human health hazard that has been definitively associated with prolonged exposure to liquid PCBs is a type of skin lesion characterized as chloracne. Eye irritation, chloracne and subclinical liver enzyme abnormalities have been recorded with high inhalation exposures. Note that no adverse human effects have ever been described for exposures to PCB surface contamination alone (references 25-3 and 25-4). For additional information regarding toxicological evaluation, guidance on occupational and environmental issues and other technical information, refer to reference 25-5.

b. The low vapor pressure associated with PCBs suggests that air concentrations on the order of 0.5 milligram per cubic meter (mg/m^3) of air are difficult to achieve under normal workplace conditions. High concentrations of liquid PCBs, optimal temperature and pressure conditions and/or subjection to mechanical dispersion processes would be required to achieve such airborne levels. Air sampling, which has been conducted at a variety of occupational worksites for industrial processes involving PCBs, confirms that airborne concentrations of PCBs are rarely detectable.

c. Under certain conditions such as industrial transformer fires, polychlorinated dibenzodioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) can be generated from PCBs or PCB solvents (chlorophenols). It must be noted that the health effects of these toxic by-products do not apply to unpyrolyzed PCB compounds, as is sometimes falsely assumed.

d. The National Institute for Occupational Safety and Health (NIOSH) and the International Agency for Research on Cancer have concluded that there is sufficient toxicological evidence to characterize PCBs as "suspected carcinogens." Neither OSHA nor the American Conference of Governmental Industrial Hygienists (ACGIH) characterize PCBs as suspected human carcinogens.

2503. Permissible Exposure Limits, Skin Designation

a. Permissible Exposure Limits (PELs). PCB PELs relate to allowable airborne exposure concentrations for an 8-hour day in a 40-hour workweek. There are two PELs for PCBs depending on the approximate percentage by weight of chlorine in the compound:

(1) Chlorodiphenyl (42 percent chlorine) - 1.0 mg/m³

(2) Chlorodiphenyl (54 percent chlorine) - 0.5 mg/m³

b. Skin Designation. Skin designation denotes that PCBs can be absorbed through the skin. Activities shall prevent or reduce skin exposure to PCBs to the extent necessary through the use of substitution, engineering controls, work practices or PPE, such as gloves, coveralls, goggles or other appropriate PPE.

2504. Control of PCB Exposure in the Workplace Environment

a. General Workplace Control Practices. For situations not exceeding the PELs and not involving unprotected PCB skin contact, activities shall employ routine work and personal hygiene measures appropriate for any occupational setting.

(1) When working with PCB-impregnated materials, such as insulating felts, or with articles that contain liquid PCB solutions, personnel shall strictly observe good housekeeping procedures to avoid the possibility of secondary surface contamination.

(2) Employees involved in PCB- related work activities shall not eat, drink, smoke, chew tobacco or gum or apply cosmetics in the work area.

(3) Activities shall collect and dispose of PCB-containing waste, scrap and debris, and PCB-contaminated clothing (consigned for disposal) in sealed impermeable bags or other impermeable containers labeled per applicable Federal, State or local environmental regulations. For guidance consult reference 25-2.

(4) Personnel shall not perform hot work in the immediate area when work is performed with PCB material.

b. Personal Protective Equipment

(1) Personnel engaged in handling PCB-contaminated or PCB-impregnated material (such as "rip out" or "stripping" operations), during which skin contact with PCBs is considered probable, shall wear the following PPE:

(a) Full-body, one-piece disposable coveralls constructed of Tyvek[®] material or comparable substitute material

(b) Nitrile or Viton[®] gloves

(c) Nitrile or neoprene foot coverings if the work involves the probability of foot contamination by any means

(d) Face shields and vented goggles or other appropriate eye protective equipment wherever the possibility of eye contact exists.

(2) If work situations exist where it is likely that workers' clothing will become saturated with PCB-containing liquids, personnel shall use protective clothing materials having "greater than 24 hours" breakthrough times against PCBs, as listed in reference 25-6. The following PPE is recommended if saturation is anticipated:

(a) Saranex[®]-coated Tyvek[®] coveralls for whole body protection

(b) Viton[®] rubber for gloves and foot coverings

(c) Face shields and chemical goggles for eye protection.

c. Respiratory Protection

(1) Under most conditions, activity OSH offices shall use air-sampling data to determine the necessity for wearing respiratory protection. The cognizant industrial hygienist shall determine the need to perform air sampling for PCBs.

(2) If air sampling results indicate that the PELs for PCBs have been exceeded, personnel shall use a supplied air respirator that has a full facepiece and is operated in the pressure-demand or other positive-pressure mode.

(3) Use of respirators shall comply with the requirements of chapter 15.

(4) When selecting respiratory protection for PCB decontamination, the cognizant industrial hygienist should give consideration to the solvent being used, the potential airborne concentration of the solvent and the possible presence of chlorinated dioxins and furans.

2505. Medical Surveillance Program

Activities shall include personnel who meet the exposure criteria outlined in reference 25-7, and as determined by an industrial hygienist, in the appropriate medical surveillance program.

2506. Environmental Contamination

PCBs are recognized environmental contaminants. The threat they pose to the environment is largely due to their chemical stability, lipid solubility and resistance to biodegradation.

Reference 25-8 provides Navy requirements that address Federal environmental regulations. Also, see references 25-9 and 25-10 for guidance. Refer to reference 25-2 for spill cleanup requirements.

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References

- 25-1. Title 29 Code of Federal Regulations (CFR) 1910.1000 Subpart Z, Table Z-1-A, of 1 Jul 96, Limits for Air Contaminants (NOTAL)
- 25-2. Title 40 CFR 761 of 1 Jul 96, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions (NOTAL)
- 25-3. DHHS, National Institute for Occupational Safety and Health (NIOSH) Publication No. 77-225 of Sep 77, "Criteria for a recommended standard, Occupational Exposure to Polychlorinated Biphenyls" (NOTAL)
- 25-4. U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR) Publication No. TP-92/16 of 1993, Toxicological Profile for Selected PCBs (Arochlor-1260, 1254, 1248, 1242, 1232, 1221, and 1016) (NOTAL)
- 25-5. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, "Poly-chlorinated Biphenyls (PCBs), Polychlorinated Dibenzofurans (PCDFs), and Polychlorinated Dioxins (PCDDs), latest edition (NOTAL)
- 25-6. ACGIH (American Conference of Governmental Industrial Hygienists) 3rd Edition, Guidelines for Selection of Chemical Protective Clothing (NOTAL)
- 25-7. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, "Medical Surveillance Procedures Manual and Medical Matrix," latest edition (NOTAL)
- 25-8. OPNAVINST 5090.1B of 1 Nov 94, Environmental and Natural Resources Program Manual, Chapter 11, "PCB Management Ashore" (NOTAL)
- 25-9. NAVSEA S9593-A1-MAN-010, Shipboard Management Guide to PCBs, latest edition (NOTAL)
- 25-10. Naval Energy and Environmental Support Activity (NEESA) 20.2-028C, PCB Program Management Guide, latest edition (NOTAL)

CHAPTER 26

MAN-MADE VITREOUS FIBERS

2601. Discussion

a. This chapter provides guidance for controlling and minimizing the exposure of Navy personnel to man-made vitreous fibers (MMVF) during use, removal and disposal of materials.

b. Man-made vitreous fibers, also referred to as man-made mineral fibers (MMMF) or synthetic vitreous fibers (SVF), are a group of fibrous inorganic materials, generally aluminum or calcium silicates, that are derived from rock, clay, slag and glass. The Navy uses MMVF for thermal and acoustical insulation and as reinforcement materials. The MMVF products have replaced asbestos as the primary source of insulation and lagging material.

c. There are three categories of MMVF:

(1) Glass fibers, including glass wool, filamentous glass and special application superfine glass

(2) Mineral wools, more correctly separated into rock wool and slag wool

(3) Refractory ceramic fibers (RCF).

For a complete discussion of MMVF, refer to reference 26-1.

d. In contrast to asbestos fibers, MMVF are amorphous; that is, they are glassy and lack a crystalline matrix. Consequently, the man-made fibers do not split longitudinally into thinner fibers, but break transversely into shorter fibers.

2602. Applicability

The provisions in this chapter apply to all facilities using man-made vitreous fiber products.

2603. Exposure Limits

a. The exposure limits for MMVFs are listed in appendix 26-A.

(1) These exposure limits are based on "pure" product exposures. If the manufacturer's material safety data sheet (MSDS) lists other regulated chemicals (i.e., in the lubricating oils or sizings), then activities must consider the applicable exposure limits for these chemicals.

(2) If the MSDS lists more stringent exposure values, consult the cognizant industrial hygienist or the Navy Environmental Health Center to assess the suggested exposure limit based on its scientific validity.

b. For a literature review of occupational exposures to MMVF, see reference 26-1.

2604. Control of MMVF in the Workplace

a. General Workplace Control Practices. When performing work on MMVF, activities shall:

- (1) Use wet methods whenever possible.
- (2) Provide containments during removal procedures, including glove bags where applicable, if necessary to keep exposures below the exposure limits.
- (3) Minimize airborne dusts and fibers through strict adherence to good housekeeping procedures. At a minimum, activities shall vacuum work areas at the end of the work-shift using a high efficiency particulate air (HEPA) vacuum. Pick up any MMVF scraps that fall to the ground or floor as soon as possible to reduce possible airborne fiber generation as a result of material disturbance.
- (4) Ensure personnel involved in MMVF operations do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the work area.

b. Ventilation

- (1) Certain operations may require the use of local exhaust ventilation (LEV) to ensure that airborne levels of MMVF do not exceed the exposure limits. All such ventilation shall be high efficiency particulate air HEPA-filtered. Activities shall design, construct, install and maintain LEV and dust collection systems per references 26-2, 26-3 and 26-4.
- (2) Work centers using power tools for machining MMVF products (i.e., saws, drills and grinders) shall equip them with HEPA-filtered local exhaust to collect dust at the source.

c. Personal Protective Clothing and Related Facilities

- (1) All personnel working with MMVF materials shall wear goggles or safety glasses with side shields and long sleeved clothing and should wear leather or other impenetrable gloves and disposable (i.e., Tyvek[®] or equivalent) coveralls. If personnel use non-disposable coveralls, they shall thoroughly clean them with a HEPA-filtered vacuum before leaving the work area. Activities shall launder them (separately from other clothing) before being worn again.
- (2) In addition to the personal protective equipment (PPE) listed above, personnel experiencing skin irritation shall wash or shower to remove the irritant substances, and upon return to work shall ensure that their long sleeved clothing is closed at the neck and wrists. They should also wear a head covering.
- (3) Personnel shall use respiratory protection when the exposure limit is or is reasonably expected to be exceeded. The minimum respiratory protection shall be half-mask with P100 filter. Activities shall ensure that respiratory protection complies with the requirements of chapter 15 of this instruction.

(4) Personnel handling MMVF materials shall wash thoroughly with soap and water before breaks and at the end of the work shift. Personnel should shower at the end of the work shift.

(5) Where the potential for exposure is effectively eliminated through the use of glove bags, the use of the PPE described above is not required.

2605. Disposal Procedures

Personnel shall adequately wet MMVF waste before placing it in heavy duty plastic bags or other suitable impermeable containers for disposal in an approved sanitary landfill.

2606. Training

a. Navy personnel who work with or handle MMVF, or who may be occupationally exposed to MMVF, shall receive the following training prior to initial assignment:

(1) The health effects/hazards of MMVF

(2) Uses of MMVF products that could result in exposure

(3) Engineering controls and work practices

(4) Purpose, proper use and limitations of personal protective equipment and the required protective equipment when working with MMVF.

b. Training records shall be per chapter 6.

2607. Industrial Hygiene Surveillance

a. The cognizant Bureau of Medicine and Surgery industrial hygienist shall establish exposure monitoring plans to characterize exposures for employees occupationally exposed to MMVF above the exposure limit. Within a class or category of similar operations, they shall sample at such frequency and pattern as to accurately and reproducibly represent airborne levels produced by a typical operation within the class or category.

b. If the initial sampling or the periodic monitoring results statistically indicate that personnel exposures are below the exposure limit, routine monitoring of personnel may be discontinued.

c. Whenever changes in production, engineering controls, or work practices occur that may effect personnel exposure, exposure monitoring shall be conducted to ensure that personnel exposures are below the exposure limit.

2608. Man-made Vitreous Fiber Medical Surveillance Program

Activities shall conduct medical surveillance, based on industrial hygiene assessment per reference 26-5.

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References

- 26-1. Navy Environmental Health Center Technical Manual 6290.91-1 Rev A of Oct 97, Man-made Vitreous Fibers (NOTAL)
- 26-2. American Conference of Governmental Industrial Hygienists Pub. No. 2092, Industrial Ventilation: A Manual of Recommended Practice, 23rd Edition (NOTAL)
- 26-3. American National Standards Institute (ANSI) Z9.2-2001, American National Standard for Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems (NOTAL)
- 26-4. MIL-HDBK-1003/17C of 29 Feb 96, Industrial Ventilation Systems (NOTAL)
- 26-5. Navy Environmental Health Center Technical Manual, Medical Surveillance Procedures Manual and Medical Matrix, Latest Edition (NOTAL)

Appendix 26-A

Exposure limits for MMVFs

The exposure limits for MMVFs are derived in part from the ACGIH 1998 TLVs:

1. Continuous filament glass fibers	1 f/cc	(a)
2. Continuous filament glass fibers	5mg/m ³	(b)
3. Glass wool fibers	1 f/cc	(a)
4. Rock wool fibers	1 f/cc	(a)
5. Slag wool fibers	1 f/cc	(a)
6. Special purpose glass fibers	1 f/cc	(a)
7. Refractory ceramic fibers	1 f/cc	(a)
8. Refractory ceramic fibers (high temperature)	.05 mg/m ³	(c)

- (a) Fibers longer than 5 µm; diameter less than 3 µm; aspect ratio greater than 5:1 as determined by the membrane filter method at 400-450X magnification (4-mm objective) phase contrast illumination.
- (b) Inhalable fraction. The concentration of inhalable particulate for the application of this exposure limit is to be determined from the fraction passing a size-selector with the characteristics of SI (d)=50% x (1 + e^{-0.06d}) for 0 < d ≤ 100µm where: SI (d) = the collection efficiency for particles with aerodynamic diameter d in µm.
- (c) High temperature means- use temperature of > 850 °C. Operations involving the removal of "high temperature" refractory ceramic fiber (RCF) materials shall adhere to an exposure limit of 0.05 mg/m³ respirable crystalline silica dust. The reason for this variation is that, at high temperatures, RCF will convert to cristobalite, a form of crystalline silica dust. The concentration of respirable particulate for the application of this exposure limit is to be determined from the fraction passing a size-selector with the characteristics of SR(d)= SI(d) [1-F(x)] with $\bar{x}=4.25 \mu\text{m}$ and $\Sigma=1.5$ and where F(x)= the cumulative probability function of a standardized normal variable,x. The variable x can be found by using the following formula:

$$x = \frac{\ln (d/\bar{x})}{\ln (\Sigma)}$$

CHAPTER 27

CONFINED SPACE ENTRY (CSE) PROGRAM (NON-MARITIME)

2701. Discussion

Confined spaces are enclosures that have limited means of entry and exit, and although they are large enough to get into, they are not designed for continuous employee occupancy. Examples include storage tanks, pits, vaults, vats, water towers, chemical reactors, process vessels, and manholes. Each year, over a million and a half workers enter confined spaces. Many are seriously injured or killed as a result of asphyxiation, electric shock, heat stress or engulfment by liquids or finely divided solids such as wood dust. Many incidents are exacerbated by ill-fated rescue attempts made by well meaning, but untrained, rescuers.

The Occupational Safety and Health Administration (OSHA) estimates that 85 percent of confined space-related incidents could have been prevented if proper precautions had been followed. Moreover, the overwhelming majority of all confined space fatalities could have been prevented if spaces had simply been tested for atmospheric hazards or ventilated prior to entry. For this reason, Navy policy is to consider all confined spaces to contain the most unfavorable and unsafe conditions. Entry into, or work in or on, such spaces is prohibited until qualified personnel have performed the tests, evaluations and prescribed procedures of this chapter to ensure that safe conditions exist and are maintained. Each installation shall develop a written program that explains the processes, means and methods used for recognizing, evaluating and controlling potential confined space hazards, and for communicating information concerning those hazards to employees.

This instruction explains the minimum requirements for an acceptable written, site-specific confined space program. It incorporates the requirements of those standards, codes, rules and regulations outlined in Appendix B. In situations where a conflict exists, the most restrictive requirement prevails.

2702. Applicability

- a. The provisions of this chapter apply to all Navy shore non-maritime commands.
- b. Naval maritime facilities such as naval shipyards, Ship Repair Facilities (SRFs), Intermediate Maintenance Facilities (IMFs), Shore Intermediate Maintenance Activities (SIMAs), Trident Refit Facilities (TRFs), and other Navy commands whose primary mission is shipbuilding, ship repair, or ship breaking are governed by reference 27-1.
- c. Navy shore non-maritime commands (e.g., PWC or FISC) performing facilities-related confined space work ashore within a facility identified in subparagraph 2702.b shall comply with this chapter, except that a certified NFPA Marine Chemist or Board certified Navy GFE shall be used as required by reference 27-1. For those situations where non-maritime commands perform confined space work at naval maritime facilities and occupy the same confined space with naval maritime facility employees, entry procedures shall be developed and managed by the cognizant Navy GFE.
- d. Navy shore non-maritime commands performing ship repair operations shall comply with reference 27-1, except that the Confined Space Program Manager (CSPM) may provide man-

agement of the applicable reference 27-1 requirements, and perform or designate other personnel to perform duties limited to those of a Navy Competent Person (formerly known as Gas Free Technician). Personnel performing Navy Competent Person duties must have completed the training and OJT specified in reference 27-1, except that the amount of experience in a maritime facility and the amount of OJT may be limited to the appropriate types of confined space operations performed by the activity as determined by the CSPM. A certified NFPA Marine Chemist or Board Certified Navy GFE shall still be used as required by reference 27-1.

2703. Program Management

a. Regional commanders, commanding officers, or officers in charge are ultimately responsible for all safety and health issues at their installations. In cooperation with other members of their management team, they shall provide continuing support, both motivational and financial; to ensure that an installation's confined space entry program remains effective. They shall appoint, in writing, a qualified CSPM.

b. The CSPM, in cooperation with line managers, supervisors, and employees, shall manage all facets of the installations confined space entry program, and has full authority to make necessary decisions to ensure the program's continued success. The CSPM is the only person authorized to amend an installation's confined space program

c. The CSPM shall successfully complete course number A-493-0030, Confined Space Safety, (formally OSH 245E Gas Free Engineering for Non-Maritime Operations) conducted by the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN), or equivalent. The cognizant headquarters command OSH manager must approve equivalent training. The command OSH office shall keep verification of such training on file along with the written appointment to the position. In addition to formal classroom training, the command shall establish a proficiency program to ensure that CSPMs possess the understanding, knowledge, and skill necessary for the safe performance of their duties. This can be accomplished by having the program audited by a CSPM from another activity.

d. The CSPM shall use additional personnel to perform duties in support of the confined space program. The CSPM has the authority to designate other qualified persons to assist in the day-to-day management and implementation of the confined space program as follows:

(1) Assistant Confined Space Manager (ACSPM). The ACSPM may be authorized to perform duties equivalent to those of the CSPM and shall meet the same qualifying criteria. The CSPM must designate the ACSPM in writing.

(2) Qualified Person (QP). QP duties are limited to performing atmospheric testing in confined spaces and inspecting for physical hazards. If the space does not contain, or have the potential to contain, any atmospheric or serious physical hazard, the QP may reclassify the space as "non-permit required". If the space contains hazards that cannot be eliminated, its classification will remain "permit required" and the QP shall contact the CSPM or ACSPM to inspect and provide an entry permit. If authorized, the QP may also conduct follow-up inspections and atmospheric testing on permit required spaces after initial permits were issued by the CSPM/ACSPM. CSPM or ACSPM shall conduct/coordinate the formal classroom/ proficiency training for personnel assigned duties as a QP and appoint the QP in writing. Training shall include the proper use, maintenance, calibration, and operational check of equipment being used. In addition, training shall include requirements and provision of this chapter as it relates to the

QP responsibilities, procedures for testing atmospheric hazards, recognition and control of hazards related to confined spaces, responsibilities of personnel entering and working in confined spaces and emergency procedures.

e. Tenant commands and/or shore installations participating in a regional OSH program may have the regional CSPM manage and administer the program through a written agreement signed by both parties.

f. Individual employees are responsible for fully understanding the installation's confined space program and for complying with its procedures and policies.

2704. Duties and Responsibilities

a. CSPM's duties and responsibilities include, but are not limited to:

(1) Ensuring, to the extent feasible, that surveys of the installation are conducted to identify existing and potential confined spaces

(2) Ensuring, to the extent feasible, that the hazards associated with each identified confined space are characterized to the extent necessary to minimize losses

(3) Reviewing and approving the purchase of equipment required for confined space entry

(4) Auditing the training of those employees involved in confined space entry to assure that they are able to demonstrate proficiency in the requirements of the installation's confined space program

(5) Auditing line managers, supervisors and designated QPs to verify that they continue to demonstrate proficiency in the discharge of their duties and responsibilities related to confined space entry

(6) Ensuring, to the extent feasible, that effective procedures for managing confined space entry work performed by independent contractors are in place

(7) Ensuring, to the extent feasible, that entry permits/entry certificates are reviewed on a periodic basis sufficient to allow identification of problems that could compromise the confined space entry program, and to assure that identified deficiencies are investigated and corrected prior to subsequent entry into the installation's confined spaces

(8) Determining when it is necessary to obtain the assistance of outside professional resources.

b. Supervisor's duties and responsibilities include, but are not limited to:

(1) Ensuring that workers under their control who enter confined spaces are informed of the hazards to which they may be exposed and have demonstrated proficiency in the skills necessary to protect themselves from those hazards.

(2) Ensuring that all special equipment required for entry is available and in proper working order

(3) Determining that training in both confined space procedures and the use of any specialized equipment has been provided, and that employees under their control who enter confined spaces, have demonstrated proficiency in the application of those procedures specialized equipment

(4) Auditing the work performed by employees under their control who enter confined spaces to assure that it conforms to this program as well as those programs integrated into it, such as lock-out/tag-out, respiratory protection, bloodborne pathogens, etc.

(5) Informing the CSPM of any unauthorized digressions from the installation's confined space program or any problems that arise during confined space entry

c. Individual employees' duties and responsibilities include, but are not limited to:

(1) Participating in the development of the installation's site specific confined space program

(2) Minimizing their exposure to potentially hazardous conditions

(3) Notifying their supervisors of any recognized uncontrolled hazards

(4) Interceding with coworkers to stop inappropriate or hazardous behaviors that may result in injury or property damage

(5) Not using defective equipment, and reporting defects to their supervisors

(6) Inquiring about the potential hazards to which they may be exposed to ensure that they know and understand the precautions they must take to protect themselves from those hazards

(7) Using equipment and conducting themselves in a manner consistent with the training they have received.

2705. Entry Options

Three options are available with respect to entry into permit-required confined spaces:

a. Reclassifying a permit-space as a non-permit space by eliminating all entry-related hazards as explained in section 2723.

b. Implementing alternative entry procedures that require continuous forced mechanical ventilation and continuous air monitoring in situations where the only hazard posed is an atmospheric hazard which can be controlled by ventilation, as explained in section 2724.

c. Establishing a permit-entry procedure, as explained in section 2725, that includes provisions for:

(1) Designating authorized entrants, authorized attendants, and authorized entry supervisors as described in section 2726.

(2) Implementing a process for issuing, canceling, reviewing and archiving written entry permits as described in section 2726.

(3) Providing for emergency rescue services as described in section 2728.

(4) Implementing, if necessary, procedures for entry into atmospheres that are immediately dangerous to life or health (IDLH), as described in section 2729.

2706. Administrative Policy

a. As a matter of administrative policy, all shore-side confined spaces, other than those associated with new construction activities, tunneling operations, trenching and excavating, telecommunications, and electrical generation, distribution, and transmission shall be permit-required confined spaces.

b. Personnel may enter permit-spaces only per the provisions of a written confined space program that explains the processes, means, and methods used to achieve compliance with this instruction. However, the ACSPM or QP may declassify a permit-space per the provisions of section 2723 or allow entry into a permit-space under the alternative entry procedures described in section 2724.

NOTE:

Locally generated confined space entry permits shall contain, at minimum, the required items found in 29 CFR 1910.146 (f).

c. Every entry into a permit-required confined space must be documented on a confined space permit/entry certificate like that in appendix C, or on an equivalent permit/certificate that is designed and formatted to addresses site-specific issues, conditions or concerns.

2707. Program Content

The CSPM, or other designated qualified person responsible for confined space program management, shall consult with affected employees and their authorized representatives on the development of a written confined space program. The program shall describe with reasonable specificity the processes, means and methods by which the installation manages its entries into confined spaces.

2708. Identification of Confined Spaces

The written program shall describe the process the installation employs to identify on-site confined spaces and poorly ventilated enclosed spaces. The process must ensure that both permit and non-permit spaces are identified. This includes mobile, portable and transient confined spaces such as those imparted by aircraft, pollution control equipment, rail tank cars, highway tank trucks, and similar shipping containers.

2709. Hazard Analysis and Risk Communication

The written program must describe the process, means, and methods the installation uses to inform affected employees of the:

- a. Existence and location of confined spaces and poorly ventilated enclosed spaces
- b. Nature of the potential hazards posed by confined spaces and poorly ventilated enclosed spaces
- c. Prohibition against entering confined spaces and poorly ventilated enclosed spaces unless special precautions are taken and an entry permit is completed.

2710. Preventing Unauthorized Entry

The written program shall describe the site-specific processes, means and methods that are used to prohibit unauthorized entrants from entering confined spaces. These methods may include any combination of the following:

- a. Verbal notification,
- b. Posting warning signs,
- c. Stickers or labels,
- d. Limiting access through the use of key cards, cipher locks, cylinder locks; tack welding the edges of the cover to the body of the enclosure, the need for a special tool, or any other equally effective means used in lieu of signs, stickers and/or labels.

2711. Pre-Entry Precautions

a. The written program shall explain the site-specific process used to identify any precautions, work practices, or controls that need to be implemented before entry. At a minimum, the program shall address the following, if applicable to the installation's operations:

- (1) Conducting a job-specific hazard analysis
- (2) Limiting access to the work area
- (3) Controlling hazardous energy
- (4) Providing effective isolation
- (5) Draining, flushing and cleaning
- (6) Testing and monitoring
- (7) Controlling atmospheric hazards
- (8) Controlling physical hazards

- (9) Assessing protective equipment needs
- (10) Emergency response planning
- (11) Determining if entry conditions are acceptable.

b. The written program shall identify any specialized equipment necessary to accomplish the tasks specified above. It shall also include provisions that the activity shall provide this equipment to employees at no cost and shall maintain the equipment to ensure its continued effectiveness.

2712. Job-Specific Hazard Analysis

All hazards associated with entry must be identified and noted on the permit before a space is entered. The written program shall describe the process for conducting a job specific hazard analysis used to achieve this objective, and a requirement that any hazards, including those that have been controlled or eliminated, be identified on the permit so that the hazard information may be communicated to affected employees.

2713. Limiting Unauthorized Access

Access to a confined space work zone must be limited to authorized employees. The written program shall describe the means and methods used to achieve this objective.

2714. Controlling of Hazardous Energy

Energy that poses a hazard to authorized entrants must be controlled to the extent feasible through disconnecting, blocking or otherwise disabling equipment whose unexpected start up could cause injury, or alternatively, by implementing a lock-out/tag-out program, that at a minimum meets the requirements of 29 CFR 1910.147. If reference is made to the facilities lock-out/tag-out program, the CSPM shall ensure that the lockout/tagout procedures are incorporated in the procedures used for confined space entry.

2715. Providing Effective Isolation

a. Isolation is the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; providing a double block and bleed system; locking- or tagging-out of all sources of energy; or blocking or disconnecting all mechanical linkages.

b. The written program shall either describe the process used to achieve isolation, or refer to the facilities general isolation program. If reference is made to the installation's program, the CSPM must evaluate that program to determine if it meets the requirements necessary to allow it to be used for confined space entry.

2716. Draining, Flushing and Cleaning

a. Spaces may contain residue that is flammable, corrosive, toxic or otherwise hazardous to entrants. The written program shall describe the process used to identify these hazards and explain how they may be eliminated or controlled prior to entry.

b. The written program shall incorporate a provision that the installation's cognizant environmental representative shall be notified to evaluate any space that is to be drained, flushed, or rinsed. This evaluation must identify any **specific** Federal, State, and/or local environmental codes, standards, rules, regulations, or statutes that apply to the draining, flushing rinsing, and waste disposal processes.

2717. Testing and Monitoring

a. This section shall explain the installation's process for identifying hazards that may require testing and monitoring, and describe the means and methods by which this testing and monitoring is to be conducted. At a minimum, the written program shall address:

- (1) Testing and monitoring of non-atmospheric hazards
- (2) Testing and monitoring of atmospheric hazards
- (3) Identifying factors affecting instrument selection
- (4) Sampling strategies, methods and techniques
- (5) Establishing instrument alarm set points
- (6) Interpreting testing and monitoring results
- (7) Establishing acceptable entry conditions
- (8) Establishing maintenance and calibration protocols
- (9) Requiring continuous monitoring when feasible
- (10) Appropriate selection and proper calibration of instruments.

b. The written program, shall also describe the process by which authorized entrants or their authorized representatives are provided with the opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces.

2718. Control Of Atmospheric Hazards

a. Written confined space programs shall stipulate that atmospheric hazards be controlled to the extent feasible through forced, mechanical ventilation. If the CSPM or other designated qualified person determines that ventilation is not effective for controlling atmosphere hazards, he/she shall require respiratory protection. Personnel entering the space shall use air-supplied

respirators unless the CSPM or other designated qualified person determines that air-purifying devices are acceptable.

b. The following is the minimum standard when evaluating for atmospheric hazards:

- (1) A flammable gas, vapor, or mist shall be lower than 10 percent of its lower explosive limit (LEL). Hot work may only be performed if the source of the gas, vapor, or mist has been determined and adequately controlled below 10% of the LEL.

Note: Even though the atmosphere is controlled to concentrations lower than 10% LEL, the CSPM or designated qualified person must ensure the measured LEL of a particular gas, vapor, or mist does not also exceed the PEL.

- (2) The atmospheric oxygen concentration shall not be below 19.5 percent or above 22 percent;
- (3) The Permissible Exposure Limit of any substance is not exceeded.

2719. Control of Physical Hazards

Physical hazards associated with confined space entry include: environmental hazards such as heat and cold stress, ionizing and non-ionizing radiation and noise; equipment-related hazards such as unguarded machinery and exposed energized conductors; and task-related hazards such splash with corrosive materials, contusions from impacts, and lacerations from sharp edges. The written program shall describe the process used to manage entrants' exposure to physical hazards.

2720. Assessing Protective Equipment

The CSPM/ACSPM, in coordination with a safety specialist and/or industrial hygienist, shall determine the requirements for appropriate personal protective clothing and equipment. See chapters 15 and 20 of this manual for specific requirements. The CSPM/ACSPM shall list required clothing and equipment on the entry certificate. The written program shall either describe the process used to assess the need for personal protective equipment, or refer to the installation's personal protective equipment program. If reference is made to the installation's program, the CSPM or other designated qualified person shall evaluate that program to determine if it meets the requirements necessary to allow it to be used for confined space entry.

2721. Emergency Response Planning

An emergency is any occurrence, including any failure of hazard control or monitoring equipment, or event internal or external, to a permit space that could endanger entrants. The written program shall explain the process for developing an emergency response plan that addresses the unique nature of each entry.

2722. Determining If Entry Conditions Are Acceptable

While precautions such as barricading, ventilating, controlling hazardous energy, and conducting atmospheric testing may be taken for entry into many confined spaces, each entry is unique. Consequently, a variety of variable parameters shall be used to establish whether or not conditions are suitable for entry. The written program shall describe the process for identifying what conditions are deemed to be acceptable for entry.

2723. Reclassification Procedures

If a permit space poses no actual or potential atmospheric hazards, and if all the other hazards within the space are eliminated without entry into the space, the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated. If it is necessary to enter the permit space to eliminate hazards, that entry shall be performed per section 2724.

The written program for any installation that decides to reclassify a permit space shall describe the process used for reclassification. At a minimum this process shall include provisions for:

- a. Explaining the basis for determining that the permit space poses no actual or potential atmospheric hazards and that all other hazards can be eliminated without the need to enter
- b. Issuing an "entry certificate" that contains the date, the location of the space, atmospheric test results, and the signature of the person making the determinations described above
- c. Making sure an "entry certificate" is made available and posting it at the site so that each employee entering the space or the employee's authorized representative can be informed of the hazards and conditions of the space.
- d. Evacuating the space if hazards arise, and reevaluating the space to determine if it must be reclassified as a permit space.
- e. The entry certificate is only valid for a period of time as determined by the CSPM.
- f. Canceled entry certificates shall be retained for at least 1 year to facilitate the review of the permit-required confined space program required by section 2735

2724. Alternative Entry Procedures

Less stringent entry procedures that do not require a permit, an attendant, an entry supervisor, or rescue provisions, may be used in situations where the only hazard posed is an atmospheric hazard that can be controlled through continuous, forced, mechanical ventilation.

The written program for any installation that decides to enter permit spaces under the alternate entry procedure shall describe the process for implementing that procedure. At a minimum, this process shall include provisions for ensuring that:

- a. An explanation of the basis for determining that the permit space poses only an atmospheric hazard is provided.

- b. An explanation of the basis for determining that the hazard can be controlled though continuous forced ventilation is provided.
- c. Any conditions that make it hazardous to remove an entrance cover are eliminated before the cover is removed.
- d. When entrance covers are removed, a railing, temporary cover, or other temporary barrier that prevents an accidental fall through the opening and protects employees from foreign objects entering the space promptly guards openings.
- e. Before employees enter the space, the internal atmosphere is to be tested, with a calibrated, direct-reading instrument, for oxygen content, flammable gases and vapors, and potential air contaminants.
- f. Any employee who enters the space, or that employee's authorized representative, is provided an opportunity to observe the pre-entry testing.
- g. A hazardous atmosphere does not exist in the space whenever it is occupied.
- h. Continuous forced ventilation is provided and used.
- i. Employees do not enter the space until the ventilation has eliminated any hazardous atmosphere.
- j. The ventilation air is provided by a clean source and does not increase the hazards in the space.
- k. The air is delivered in a manner that ventilates the immediate areas where employees are present within the space.
- l. The ventilation is continued until all employees have left the space.
- m. The atmosphere within the space shall be monitored continuously with a direct reading instrument to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere, unless the CSPM or other designated qualified person determines that such monitoring is unnecessary. Atmospheric testing results shall be documented with the date and time of test. Test results shall be kept with the entry certificate.
- n. A written entry certificate is issued that contains the date, the location of the space, and the signature of the person providing the certification. The certification shall be made before entry and shall be made available to each employee entering the space, or to that employee's authorized representative.
- o. When there are changes in the use or configuration of a non-permit space that might increase the hazards to entrants, the space is reevaluated and if necessary, reclassified as a permit-space.
- p. If a hazardous atmosphere is detected during entry, employees shall immediately evacuate, and the space shall be evaluated to determine how the hazardous atmosphere de-

veloped, and procedures shall be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.

q. Canceled entry certificates shall be retained for at least 1 year to facilitate the review of the permit-required confined space program required by section 2735.

2725. Permit-Required Program Elements

If a permit-space cannot be reclassified as explained in section 2723, or cannot be entered under the alternate entry procedures described in 2724, it shall be entered under the auspices of a written, site-specific, entry permit procedure, which at a minimum, describes the process for:

- a. Issuing, canceling, reviewing and archiving entry permits.
- b. Designating employees authorized to participate in the entry, including entrants, attendants, and entry supervisors.
- c. Rescue response planning, including the process used to identify, evaluate, and select a rescue service provider.
- d. Establishing procedures for entry into atmospheres that are immediately dangerous to life or health.

2726. Permit System

The written program shall include an explanation of the process used for issuing, canceling, reviewing and archiving entry permits. The process shall include provisions that require that:

- a. The supervisor sign the permit indicating that all specified precautions have been taken, that conditions are acceptable for entry as explained in section 2722 and that authorized entrants may proceed into the space.
- b. The duration of the permit does not exceed one shift or the time required to complete the assigned task or job identified on the permit, whichever is less.
- c. Completed permits be made available at the time of entry to all authorized entrants or their authorized representatives, by posting at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry hazards have been controlled. Any problems encountered during an entry must be noted on the permit so that appropriate revisions to the confined space program can be made.
- d. Canceled permits be retained for at least 1 year to facilitate the review of the permit-required confined space program required by section 2735. Permits that contain atmospheric testing information that constitutes an employee exposure record shall be maintained for the employee's duration of employment plus 30 years as stipulated by 29 CFR 1910.1020.

2727. Designation of Employees

The written program shall describe the process used to designate confined space entrants, attendants, supervisors, and entry. Duties and responsibilities for these individuals are described in appendix A.

2728. Rescue Procedures

The written, site-specific plan shall describe the process used to:

- a. Identify credible scenarios that may require rescue
- b. Identify potential providers of rescue services
- c. Evaluate the capabilities of potential rescue service providers to assure that they are capable of providing timely rescue services consistent with the nature of the anticipated emergencies, and are in fact able to rescue incapacitated entrants from the space
- d. Develop procedures for summoning rescue services
- e. Provide necessary aid to rescued employees.

2729. Procedures For Entry Into IDLH Atmospheres

Entry into, work in, or on a confined space that is immediately dangerous to life and health (IDLH) shall not be permitted under normal operations and is only authorized in cases of rescue efforts and extreme emergencies. The written program shall describe the site-specific procedures that are followed when entry must be made into spaces that are immediately dangerous to life and health (IDLH). These procedures shall include provisions for ensuring that:

- a. Installation commanders or their designees are notified, specifically to authorize the entry into the IDLH atmosphere and provide necessary assistance appropriate to the situation.
- b. One employee or, when needed, more than one employee, is located outside the IDLH atmosphere during entry.
- c. Visual, voice, or signal line communication is maintained between the employees in the IDLH atmosphere and those located outside the IDLH atmosphere.
- d. The employees located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.
- e. Employees located outside the IDLH atmospheres are equipped with:
 - (1) Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA

(2) Appropriate retrieval equipment for removing the employees who enter these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employees and would not increase the overall risk resulting from entry; or provide equivalent means for rescue where retrieval equipment is not feasible.

f. In the case of a potentially flammable atmosphere, all ignition sources are prohibited.

2730. Hot Work

Hot work includes all flame heating, welding, torch cutting, brazing, carbon arc gouging or any work which produces heat, by any means, of 400 degrees F (204 degrees C) or more, and, in the presence of flammables or flammable atmospheres, other ignition sources such as spark or arc producing tools or equipment, static discharges, friction, impact, open flames or embers, and non explosion proof lights, fixtures, motors or equipment. The written program shall either describe the process used to control hazards associated with hot work, or refer to the installation's hot work program. If reference is made to the installation's hot work program, the CSPM shall evaluate that program to determine if it meets the requirements necessary to allow it to be used for confined space entry. Minimum work practices that the hot work program shall address are described in chapter 5 of reference 27-1.

2731. Special Processes

Processes such as, but not limited to, spray application of flammable or combustible materials, abrasive blasting, and pressure-washing pose special hazards. An installation that performs these tasks shall develop a job-specific hazard analysis that addresses the unique hazards posed by each of these processes.

2732. Employee Training

Employees who enter confined spaces shall possess the understanding, knowledge, and skill necessary for the performance of their duties. The written program shall explain the process the installation uses to ensure that employees are trained and have demonstrated proficiency in confined space entry.

2733. Contractor Management Provisions

a. Whenever contractors perform work in an installation's confined spaces, the job shall be coordinated so that neither the contractor nor the installation's employees jeopardize each other's safety. The written program shall describe the process for managing work contractors perform in the installation's confined spaces. At no time shall contractor personnel enter a confined space under the installation's permit or certification. If contractor personnel and Navy personnel occupy the same space certification shall be for Navy personnel only and stated so on the permit or certificate.

b. At a minimum the written program shall include provisions that stipulate that the party responsible for requesting that the contract work be performed is personally responsible for ensuring that the work is carried out per the contract provisions. The written program shall also describe the installation's process for:

(1) Informing the contractor that the installation contains permit spaces

- (2) Explaining to the contractor why a space is considered to be a permit-space
 - (3) Sharing knowledge of the hazards that have been identified through experience with the space
 - (4) Informing the contractor that their personnel may only enter permit-spaces under the provisions of the installations written program
 - (5) Apprising the contractor of any precautions or procedures that the installation has implemented for the protection of employees in or near permit spaces where contractor personnel will be working (for example draining, flushing, isolating, etc.)
 - (6) Coordinating entry operations with the contractor, so that contractor and installation employees do not compromise each other's safety
 - (7) Debriefing the contractor at the conclusion of the entry relative to any hazards confronted or created during entry operations.
- c. The written program shall include a provision that describes the installation's process for determining if the contractor's written program addresses at least the following elements as applicable to the specific job to be performed:

- (1) Conducting a job-specific hazard analysis
- (2) Limiting access to the work area
- (3) Controlling hazardous energy
- (4) Providing effective isolation
- (5) Draining, flushing and cleaning
- (6) Testing and monitoring
- (7) Controlling atmospheric hazards
- (8) Controlling physical hazards
- (9) Assessing protective equipment needs
- (10) Determining if entry conditions are acceptable
- (11) Issuing, canceling, reviewing and archiving entry permits
- (12) Designating of employees authorized to participate in the entry including entrants, attendants and entry supervisors

(13) Emergency planning, including identifying, evaluating and selecting rescue services

(14) Establishing procedures for entry into atmospheres that are immediately dangerous to life or health.

d. The written program shall also describe the process that will be followed in the event that the CSPM or other designated qualified person determines that the contractor's program does not address one of the elements listed above. The contractor shall correct this deficiency before the installation allows work to proceed.

2734. Precautions for Specific Operations

a. Specific regulatory provisions govern construction activities including underground construction and trenching; telecommunications work; and work involving the generation, distribution and transmission of electricity.

b, Construction Operations

(1) Even though the OSHA permit-required confined space standard does not apply to construction work, construction contractors shall comply with generally accepted industry procedures, practices and standards covering entry into confined spaces. To that end, construction contractors who enter confined spaces at naval facilities shall have a written confined space program that meets the minimum requirements prescribed by this instruction.

(2) A construction contractor may use its existing generalized confined space entry program, provided that it is supplemented by other documentation that describes how it intends to manage the job-specific hazards. In addition, as stipulated by OSHA standard 29 CFR 1926.21(b)(2) each construction contractor shall have a designated competent person as defined by 29 CFR 1926.32(f) who is responsible for making regular and frequent inspections of the job sites. For all ROICC contracts, military construction contracts, contractors must follow guidelines provided in EM-385-1 U.S. Army Corps Of Engineers Safety And Health Requirements Manual for working in confined spaces as well as 29 CFR 1926 Construction Standards.

c. Trenches and Excavations. Although trenches and excavation appear to meet the definition of a permit-space, specific trenching and excavation regulations more appropriately address the hazards they pose. However, since hazards posed are similar to those associated with confined space entry, procedures must exist that address such things as atmospheric testing, ventilation, and emergency response planning. A separate site-specific trenching and excavation policy rather than the installation's confined space program should address entry into trenches and excavations.

d. Underground Construction

(1) This section applies to the construction of underground tunnels, shafts, chambers, and passageways. It also applies to cut-and-cover excavations, which are both physically connected to ongoing underground construction operations within the scope of this section, and covered in such a manner as to create conditions characteristic of underground construction.

(2) A separate site-specific tunneling and excavation policy rather than the installation's confined space program should address working involving tunneling and other underground construction activities excavations.

e. Aircraft (ACFT) Fuel Cells

(1) ACFT fuel cell entry often presents unique entry requirements. Installations shall acquaint personnel with the fuel cell associated with each type, model, and series. ACFT or fuel cell configuration on which they will be providing confined space services. All elements of this instruction apply to ACFT confined space entry.

(2) A previously certified rubber fuel cell, which has been removed from the aircraft, may be reclassified as requiring no certificate if testing and inspection demonstrate that the hazards within the fuel cell have been eliminated. This applies only to rubber fuel cells that have been removed from the ACFT. It does not apply to installed rubber fuel cells or drop tanks.

(3) Only the Naval Air Systems Command (NAVAIRSYSCOM) (PMA 260) approved gas detectors shall be used to obtain required test readings of the atmosphere in a fuel cell.

f. Telecommunication, and Electrical generation, distribution and transmission

This section applies to operation conducted in manholes, un-vented vaults or any other confined space covered under 29 CFR 1910.268 and 269.

g. Confined space operations conducted on a Naval Maritime Facility or ship repair operations at any location

(1) The requirements of subparagraphs 2702.c and 2702.d shall be followed, except that if a space contains or has contained liquids, gases, or solids that are toxic, corrosive, or irritant and cannot be ventilated to within the PELs or is IDLH, a certified NFPA Marine Chemist, a Board-Certified Navy GFE, or Certified Industrial Hygienist must re-test the space until the space can be certified SAFE FOR ENTRY or SAFE FOR ENTRY WITH PPE. In such case, the Certified Industrial Hygienist also may provide the certification.

(2) In situations that apply to paragraph 2702.c, the CSPM or designated representative shall be trained and knowledgeable of reference 27-1 procedures that are applicable to the operations being performed.

2735. Program Evaluation

The CSPM or other designated qualified person shall evaluate the effectiveness of the installation's confined space program at least annually and whenever there is reason to believe that the program may not providing adequate protection to employees. The purpose of this evaluation is to identify program deficiencies and correct them before authorizing subsequent entries. The site-specific written program shall describe the process used for conducting and reviewing the installation's confined space program.

Chapter 27

References

27-1 Gas Free Engineering Manual, NAVSEA S6470-AA-SAF-010 REV 01, 1 Sept 99

Appendix 27-A

Designation of Employees

1. **Supervisors.** Supervisors shall cancel permits if a condition not allowed under the permit arises in or near the permit space and remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations. Consequently, they shall either remain at the space for the duration of entry, or they must transfer that authority to a new attendant. The latter is possible only if the new attendant possesses the requisite knowledge and skill to act as the supervisor under conditions present at the time of the entry. The supervisors' duties and responsibilities shall include:

- a. Knowing the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposures
- b. Verifying, by checking the permit, that all tests the permit specifies have been conducted and that all procedures and equipment the permit specifies are in place before endorsing the permit and allowing entry to begin
- c. Terminating the entry and canceling the permit when the entry operations covered by the permit have been completed, or when a condition that is not allowed under the entry permit arises in or near the permit space
- d. Verifying that rescue services are available, and that the means for summoning them are operable
- e. Removing unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
- f. Determining, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

2. **Authorized Attendants.** Authorized confined space attendants shall:

- a. Know the hazards that entrants may face during entry, including information on the mode, signs or symptoms, and consequences of exposure.
- b. Be aware of possible behavioral effects in authorized entrants.
- c. Keep an accurate count of authorized entrants in the permit space and ensure that any means used to identify authorized entrants such as a badge-in/ badge-out board is accurately maintained.

- d. Remain outside the permit space during entry operations until relieved by another attendant.
- e. Communicate with authorized entrants as necessary to monitor their status and to alert entrants of the need to evacuate the space
- f. Monitor activities inside and outside the space to determine if it is acceptable for entrants to remain in the space.
- g. Order entrants to immediately evacuate the space under any of the following conditions:
 - (1) A prohibited condition is detected.
 - (2) Behavioral effects associated with potential hazards to which entrants may be exposed are observed.
 - (3) A situation develops outside the space that could endanger the entrants.
 - (4) The attendant cannot effectively and safely perform all the required duties.
- h. Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
- i. Take the following actions when unauthorized persons approach or enter a permit space while entry is underway:
 - (1) Warn the unauthorized persons that they must stay away from the permit space.
 - (2) Advise the unauthorized persons that they must exit immediately if they have entered the permit space.
 - (3) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
- j. Perform non-entry rescues as specified by the rescue procedure.
- k. Perform no duties that might interfere with their primary duty to monitor and protect the authorized entrants.

3. Authorized Entrants. Authorized confined space entrants shall:

- a. Know the hazards they may face during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- b. Be able to demonstrate proficiency with any equipment they are expected to use, including under emergency conditions such as equipment failure.

- c. Communicate with the attendant as necessary to enable the attendant to monitor their status, and to enable the attendant to alert them of the need to evacuate the space if necessary.
- d. Alert the attendant whenever:
 - (1) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - (2) The entrant detects a prohibited condition.
- e. Exit the space as quickly as possible whenever:
 - (1) An order to evacuate is given by the attendant or the entry supervisor.
 - (2) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - (3) The entrant detects a prohibited condition.
 - (4) An evacuation alarm is activated.

Appendix 27-B

Standards Incorporated by Reference

Occupational Safety and Health Administration

Government Printing Office <http://www.gpo.gov>

General Industry Standard 29 CFR 1910

Shipyards Industry Standard 29 CFR 1915

Construction Industry Standards 29 CFR 1926

National Fire Protection Association
Battery March Park
Quincy, MA
<http://www.nfpa.org>

American National Standards Institute

Instrument Society of America

American Petroleum Institute
Washington, DC
<http://www.api.org>

EM-385-1 U.S. Army Corps of Engineers Safety and Health Requirements Manual

Appendix 27-C
Entry Permit/Certificate Minimum Requirements

Confined space entry permit/certificate must minimally contain the following information per 29 CFR 1910.146:

- (1) The permit/confined space entered.
- (2) The purpose of the entry.
- (3) The date and the authorized duration of the entry permit/certificate.
- (4) The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space.

NOTE:

This requirement may be met by inserting a reference on the entry permit as to the means used, such as a roster or tracking system, to keep track of the authorized entrants within the permit space.

- (5) The personnel, by name, currently servings as attendants.
- (6) The individual, by name, currently serving as entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized entry.
- (7) The hazards of the permit space to be entered.
- (8) The measures used to isolate the permit space and to eliminate or control permit space hazards before entry;

NOTE:

Those measures can include the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces.

- (9) The acceptable entry conditions.
- (10) The results of initial and periodic tests performed, accompanied by the names or initials of the testers and by an indication of when the tests were performed.

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(11) The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services.

(12) The communication procedures used by authorized entrants and attendants to maintain contact during the entry.

(13) Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this section.

(14) Any other information whose inclusion is necessary, given the circumstances of the particular confined space, in order to ensure employee safety.

(15) Any additional permits, such as for hot work that have been issued to authorize work in the permit space.

(16) Include section for reclassification/or alternative entry procedure to allow for explanation for basis of downgrading the permit for personnel entry.

CHAPTER 28

BLOODBORNE PATHOGENS

2801. Discussion

The principal bloodborne pathogens of concern in this chapter are human immunodeficiency virus (HIV), hepatitis B virus (HBV), and hepatitis C virus (HCV). Many others exist, but generally are not occupationally transmitted in significant numbers. Due to the rapid spread of Acquired Immune Deficiency Syndrome (AIDS), and its precursor HIV, and to counter HBV, the Occupational Safety and Health Administration (OSHA) generated the bloodborne pathogens standard to protect people from occupational exposures to all bloodborne pathogens. The diseases associated with these pathogens are preventable when the appropriate precautions are taken. The objective of this chapter is to protect Navy personnel by providing the guidance necessary to understand and implement the requirements of the bloodborne pathogens standard.

2802. Applicability

This chapter applies to all facilities in which workers have occupational exposure to potential bloodborne pathogens. Hospitals, medical treatment facilities, emergency rescue personnel, enforcement personnel, laboratories working with potential bloodborne pathogens, and all other personnel who can reasonably anticipate to have occupational exposure to bloodborne pathogens shall meet the requirements of reference 28-1.

2803. Exposure Determination

The requirement for first aid and cardio pulmonary resuscitation (CPR) training alone does not dictate the need to include individuals into programs designed to meet the bloodborne pathogens standard's requirements. Personnel who perform "Good Samaritan" acts that result in potential exposure shall receive the same prompt medical evaluations and follow-up that covered employees receive. Facilities shall follow reference 28-1 for exposure determination procedures.

2804. Hazard Prevention and Control

Facilities shall conduct hazard prevention and control procedures per references 28-1 and 28-2.

2805. Responsibilities

a. Echelon Two and other Headquarters Commanders shall provide guidance and assistance to subordinate commands to ensure the effectiveness of this program, including assistance in determining the job classifications of covered employees.

b. The Chief of Naval Education and Training (CNET) shall provide bloodborne pathogen training, and training materials meeting the requirements of reference 28-1 through the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN). Development of training and training material shall be coordinated with the Chief, Bureau of Medicine and Surgery (BUMED).

c. BUMED shall:

(1) Review and provide technical and administrative guidance on the medical aspects of the bloodborne pathogens program.

(2) Provide guidance for the review of medical records for bloodborne pathogen information and trends.

(3) Review CNET training material, (e.g., videos, interactive computer software, courses), for consistency with requirements of this chapter.

Chapter 28

References

28-1. Title 29 Code of Federal Regulations (CFR) 1910.1030 of 6 December 91, Bloodborne Pathogens (NOTAL)

28-2. BUMEDINST 6230.15, Immunization and Chemoprophylaxis, (NOTAL)

CHAPTER 29

OCCUPATIONAL REPRODUCTIVE HAZARDS

2901. Discussion

a. A reproductive hazard is any biological, chemical, or physical stressor that has the potential to adversely affect the human reproductive process. These effects may occur through either parent's reproductive cells, prior to conception or during the development of the fetus. A reproductive hazard that has its effect during fetal development is a developmental hazard.

b. Many potential stressors which are considered reproductive hazards also cause injury to other human organ systems. The government already regulates many of them based on these other effects. Therefore, if the worksite is following regulations and exposures are below established permissible levels for these regulated hazards, the reproductive system is also protected. However, in some cases reproductive effects occur at lower exposure levels than these other effects. In these cases, the current exposure standards do not protect the reproductive system. These hazards are the primary concern of this chapter.

c. Much is not known about reproductive hazards. A hazardous workplace exposure may, in some cases, occur, far removed from its ultimate reproductive effect. Flexibility in handling these issues is, therefore, a necessity to allow changes to procedures and processes as knowledge is gained.

2902. Policy

a. Navy policy is to provide safe and healthful working conditions for all employees. This includes protection of employees' reproductive capacity and their future or developing offspring from untoward effects of employee exposures.

b. The number of occupational exposure criteria (permissible exposure limits (PELs,) etc.) that were developed to protect the reproductive system is limited. The goal is to keep the utilization of known reproductive stressors as low as reasonably achievable. Activities shall document efforts to achieve this goal per paragraph 2903. The primary methods of achieving this goal shall be through use of engineering controls, and the judicious use of personal protective equipment.

c. In most cases, the potential for exposure to reproductive hazards should not automatically force the removal of an individual from a position, billet or job. However, removal from a particular task within a position or job modification may be necessary. In no case shall activities use the potential for exposure to reproductive hazards to deny employment or promotion. If, as a last resort, job removal is necessary based upon operational requirements coupled with an inability to control workplace reproductive hazards, activities shall not deny any individual pay or promotion because of activities enacting measures to protect their reproductive health and/or that of their developing fetus.

d. Reference 29-1 provides policy and procedures regarding the management of pregnant service women. References 29-2 through 29-5 contain guidance on civilian personnel issues related to pregnant workers. The occupational safety and health (OSH) office shall refer all

employee questions regarding pregnancy employment issues to the human resources office. Appendix 29-A reprints specific information from references 29-4 and 29-5 on work-related issues during pregnancy.

2903. Control of Reproductive Hazards in the Workplace

a. Identification and Evaluation of Reproductive Stressors

(1) For simplicity, appendix 29-B provides a list of common chemicals that may be present in general Navy workplaces. Reference 29-6 provides additional guidance on chemical, physical and biological stressors. Safety personnel shall routinely look for these hazards during inspections. In addition, pharmacy and medical personnel should be aware of drugs and anti-neoplastic agents that reference 29-6 lists.

(2) Industrial hygiene personnel shall identify reproductive stressors that appendix 29-B lists during surveys of all Navy workplaces, as section 0802 of this instruction requires.

(3) Industrial hygienists (IH) shall clearly annotate (highlight, asterisk, etc.) reproductive stressors on the list (that paragraph 0803b requires) of materials and harmful physical agents found in each workplace.

(4) Where stressor-specific exposure standards developed with the intent to protect the reproductive system exist, activities shall quantify the degree of exposure using conventional means, and then compare the results to those exposure standards (i.e., PELs, threshold limit values (TLVs), etc.). Where stressor specific standards either do not exist, or were developed without consideration of reproductive health risk, activities shall still determine the quantitative evaluation of the exposure if possible. An IH and an occupational physician shall review the results of sampling. They shall determine the significance of any potential reproductive risk to male and female employees or developing fetuses at this time and incorporate the findings into the report along with recommended mitigation procedures, if necessary.

(5) The IH shall specifically address a reproductive hazard assessment (including negative determinations) as part of the routine evaluation in industrial hygiene survey reports they submit to the cognizant line activity per paragraph 0803 of this instruction. If the exposure assessment is unacceptable, recommendations to reduce exposures per paragraph 2902b should be made.

(6) Activities should contact the Navy Environmental Health Center (NEHC) if they need additional assistance, (757) 462-5500 (DSN: 253-5500).

b. Hazard Abatement

(1) Chapter 5 discusses basic principles for controlling all hazards in the occupational environment. These include substitution with less hazardous materials; engineering controls (local exhaust ventilation systems, etc.); administrative controls (job rotation, work time limits, etc.); and the use of personal protective equipment (PPE). Activities shall not consider the routine prolonged removal of an individual (or subpopulation) from a particular worksite an appropriate administrative control.

(a) For chemicals that are known reproductive hazards, substitution with a less hazardous substance is the abatement method of choice.

(b) Activities shall consider all products that they currently use containing more than trace amounts of any of the chemicals. Appendix 29-B lists for possible elimination by substitution with a less hazardous material. While it is not possible to establish a strict definition of the term "trace", the presence of a confirmed reproductive toxicant in a product, at a concentration of 0.1 percent or greater by weight, should serve as a general guideline with regard to consideration of hazardous materials control/ substitution initiatives.

(c) Activities shall consider products containing chemicals in appendix 29-B for elimination/reduction via the Environmental and Natural Resources Program Manual in reference 29-7.

(d) Activities shall also consider these chemicals (appendix 29-B) for substitution issues in the development of hazardous material inventories and authorized use lists that chapter 7 of this instruction prescribes.

(2) The use of PPE, including respirators, is the last resort method for hazard abatement. If activities use PPE, they shall exercise caution to ensure that the PPE does not pose a heat stress, heavy lifting, or other hazard in itself.

c. Training

(1) All occupational safety and health (OSH) professionals should receive training concerning reproductive hazards. The training should address Navy policy, legal considerations, risk communication, and technical issues (hazard identification, evaluation, and control). The Navy considers training provided in Navy-sponsored workshops as well as CNET-approved courses sufficient to satisfy this requirement.

(2) Activities shall also specifically address reproductive hazards in OSH training programs for personnel responsible for or working with reproductive stressors (e.g., management personnel, civilian personnel officers, supervisors, employee representatives, and non-supervisory personnel) per chapter 6 of this instruction.

d. Counseling Section

(1) General. Activities shall afford all employees who have potential exposure to occupational reproductive hazards counseling by a credentialed occupational medicine provider, if requested.

(2) Medical activities including contract facilities, shall question all patients, especially pregnant women, seen at the facility regarding their, and their spouses' potential exposure to developmental hazards. The Navy recommends referral to occupational medicine for evaluation if activities determine there is a possibility of exposure.

(3) Developmental Hazards. The Navy strongly encourages all female employees who become pregnant to notify their commands immediately. Upon notification, the command shall perform the following evaluation:

(a) The woman shall be given the Developmental Hazard questionnaire in appendix 29-C. The pregnant woman should fill this out with command supervisory personnel, knowledgeable of the woman's workplace. If the potential for exposure to a developmental hazard is present in the workplace, or if activities have not determined the possibility of such potential, activities shall arrange for an occupational health physician to evaluate the woman as soon as possible.

(b) If the most recent industrial hygiene survey documents that no potential for exposure to a developmental hazard exists in the woman's workplace, then an occupational medicine evaluation should occur if either the pregnant woman or her commanding officer requests it.

(c) Place a copy of the appropriate sections of the completed evaluation in the employee's medical record and in the employee's command safety office.

(4) Activities shall encourage all male employees anticipating conceiving children within 120 days or whose partner is currently pregnant to notify their commanding officer so that activities can conduct a reproductive/developmental hazard evaluation.

(5) Male and female infertility evaluations should include consultation with occupational medicine to determine if occupational or environmental exposures may be related to the disorder.

2904. Responsibilities

a. Commanding Officers shall:

(1) Ensure that all safety officers are cognizant of all items in appendix 29-B utilized at the command. Medical commands and commands with hospital units shall utilize the list in reference 29-6.

(2) Train all employees concerning the importance of occupational reproductive hazards, and specifically concerning the hazards present at the command, and the importance of command notification of conception of offspring. Upon notification of pregnancy, ensure that female workers complete the questionnaire in appendix 29-C and that an occupational physician performs an evaluation per 2903(d)(2).

(3) Maintain exposures of all personnel to reproductive hazards below applicable standards where available or below limits that occupational health professionals recommend where no standards are yet established.

b. The Chief, Bureau of Medicine and Surgery (BUMED) shall:

(1) Provide for professional and technical assistance relative to reproductive hazards to all commands.

(2) Publish guidance for occupational health professionals on industrial hygiene and medical issues concerning occupational reproductive hazards. Such guidance shall include:

(a) Workplace surveillance for the presence of reproductive hazards, and their exposure levels

(b) A current list of known reproductive stressors that may be present in general Navy workplaces. Appendix 29-B is the 1998 edition of this list.

(c) Information on reproductive stressors considered, but not selected, for the list along with the rationale for non-selection

(d) Appropriate training for all OSH professionals

(e) Appropriate counseling to personnel potentially exposed to reproductive hazards.

(3) Review references 29-1 and 29-8 and this chapter to ensure that Navy policy is consistent with the Supreme Court ruling and other related legislation.

(4) Review of possible candidate-substitute materials identified by Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) to identify potential reproductive toxicants, upon request.

(5) Assist CNET in developing training programs for OSH professionals and workers. Provide for individual occupational medicine counseling of pregnant employees exposed to developmental hazards per section 2903d and of other employees upon request.

c. Chief of Naval Education and Training (CNET) shall develop training programs for OSH professionals and workers to address reproductive stressors of Navy concern. BUMED shall provide technical guidance for this training.

d. COMNAVSUPSYSCOM shall identify products currently in Navy use that contain reproductive stressors listed in appendix 29-B for substitution, elimination, and annotation in HMIS.

Chapter 29

References

29-1. OPNAVINST 6000.1A of 28 Feb 89, Management of Pregnant Servicewomen

29-2. OCPMINST 12630.1 of 17 Jun 88, Absence and Leave (NOTAL)

29-3. Public Law 95-555 (92STAT 2077) (78), Prohibition of Sex Discrimination on the Basis of Pregnancy (NOTAL)

29-4. Title 5 Code of Federal Regulations part 335 of 1 Jan 2000, Promotion and Internal Placement (NOTAL)

29-5. 29 CFR 1604.10, Employment Policies Relating to Pregnancy and Childbirth (NOTAL)

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29-6. Navy Environmental Health Center Technical Manual NEHC-TM92-2, May 1992, Reproductive Hazards in the Workplace: A Guide for Occupational Health Professionals

29-7. OPNAVINST 5090.1B of 1 Nov 94, Environmental and Natural Resources Program Manual (NOTAL)

29-8. Supreme Court Ruling, 89-1215 (20 Mar '91), International Union, United Automobile, Aerospace and Agricultural Implement Worker's of America, UAW, et al., Petitioners v. Johnson Controls, Inc. (NOTAL)

Appendix 29-A

Pertinent Reference Information On Pregnancy Employment Policies

1. Federal Personnel Manual, Subchapter 13, Article 13-5, paragraph a.(2)

Agencies should always be aware of working conditions or strenuous requirements in the workplace that could have an adverse effect on an expectant mother. If, after consulting her doctor, an employee asks for a change in duties or assignment, every reasonable effort should be made to accommodate her. Agencies may request medical certification of the nature of the limitations recommended by the employee's doctor. Sick leave may also be used for physical examinations.

2. 29 CFR 1604 Appendix - Questions and Answers on the Pregnancy Discrimination Act

a. Question: If, for pregnancy-related reasons, an employee is unable to perform the functions of her job, does the employer have to provide her an alternative job?

Answer: An employer is required to treat an employee temporarily unable to perform the functions of her job because of her pregnancy-related condition in the same manner as it treats other temporarily disabled employees, whether by providing modified tasks, alternative assignments, disability leaves, leave without pay, etc. For example, a woman's primary job function may be the operation of a machine, and, incidental to that function, she may carry materials to and from the machine. If other employees temporarily unable to lift are relieved of these functions, pregnant employees also unable to lift must be temporarily relieved of the function.

b. Question: What procedures may an employer use to determine whether to place on leave a pregnant employee who claims she is able to work or deny leave to a pregnant employee who claims that she is disabled from work?

Answer: An employer may not single out pregnancy-related conditions for special procedures for determining an employee's ability to work. For example, if an employer requires its employees to submit a doctor's statement concerning their inability to work before granting leave or paying sick benefits, the employer may require employees affected by pregnancy-related conditions to submit such statement. Similarly, if an employer allows its employees to obtain doctor's statements from the personal physicians for absences due to other disabilities or return dates from other disabilities, it must accept doctor's statements from personal physicians for absences and return dates connected with pregnancy-related disabilities.

c. Question: Can an employer have a rule that prohibits an employee from returning to work for a predetermined length of time after childbirth?

Answer: No.

d. Question: If an employee has been absent from work as a result of a pregnancy-related condition and recovers, may her employer require her to be on leave until after her baby is born?

Appendix 29-A

Enclosure (1)

Answer: No. An employee must be permitted to work at all times during pregnancy when she is able to perform her job.

e. Question: Must an employer hold open the job of an employee who is absent on leave because she is temporarily disabled by pregnancy-related conditions?

Answer: Unless the employee on leave has informed the employer that she does not intend to return to work, her job must be held open for her return on the same basis as jobs are held open for employees on sick or disability leave for other reasons.

f. Question: Must an employer hire a woman who is medically unable, because of pregnancy-related conditions, to perform a necessary function of a job?

Answer: An employer cannot refuse to hire a woman because of her pregnancy-related condition so long as she is able to perform the major functions necessary to the job. Nor can an employer refuse to hire her because of its preferences against pregnant workers or the preferences of co-workers, clients, or customers.

Appendix 29-B

**Occupational Reproductive
Chemical Stressors List^A**

Chemical	Class	PEL	TLV	Type of Stressor		
Acetohydroxamic acid*		-	-		D	
Aminopterin	Insecticide	-	-	F		D
Arsenic	Pesticide	+	+			D
Benomyl	Fungicide	+	+	M		D
Benzene	*	+	+	M		D
Bromoxynil	Herbicide	-	-			D
Cadmium	Metal	+	+	M		D
Carbon disulfide	Solvent	+	+	M	F	D
Carbon Monoxide	*	+	+			D
Chlordecone(Kepone)	Insecticide	-	-			D
Cyanazine	Herbicide	-	-			D
Cycloheximide	Fungicide	-	-			D
Cyhexatin	Insecticide	-	+			D
Dinocap	Insecticide	-	-			D
Dinoseb	Insecticide	-	-	M		D
1,2-Dibromo-3-chloropropane	Nematocide	+ R	-	M		
m-Dinitrobenzene	*	+	+	M		
o-Dinitrobenzene	*	+	+	M		
p-Dinitrobenzene	*	+	+	M		
Epichlorohydrin	Solvent	+	+	M		
Ethylene glycol monoethyl ether	Solvent	+	+	M		D
Ethylene glycol monoethyl ether acetate	Solvent	+	+	M		D
Ethylene glycol monomethyl ether	Solvent	+	+	M		D
Ethylene glycol monomethyl ether acetate	Solvent	+	+	M		D
Ethylene oxide	Sterilizing Agent	+ R	+		F	
Hexachlorobenzene	*	-	+			D
Hydroxyurea	*	-	-			D
Chemical	Class	PEL	TLV	Type of Stressor		

Lead	Metal	+ R	+	M	F	D
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Mercury and mercury compounds	Metal	+	+	D
Methyl bromide	Fumigant	+	+	D
Methyl mercury	Organometal	+	+	D
Nickel carbonyl	*	+	+	D
Polybrominated biphenyls (PBBs)	*	-	-	D
Polychlorinated biphenyls(PCBs)	*	+	+	D
2,3,7,8-Tetrachloro- dibenzo-para-dioxin (TCDD)	*	-	-	D
Toluene	Solvent	+	+	D
-				
Warfarin	Rodenticide	+	+	D

A = Source for this information is 31 March 1998 Navy Reproductive Hazards
Review Board Meeting

M = Male

F = Female

D = Developmental

* = Unable to classify into a single functional class

PEL = OSHA's permissible exposure limit (PEL)

TLV = ACGIH threshold limit value (TLV)

+

- = Does not exist

R = Level considers reproductive effects

Appendix 29-C

Workplace Exposures Of Reproductive Concern Joint Supervisor's And Worker's Statement

The supervisor and the worker are to complete this form at the time of a female worker's confirmed pregnancy or any time a male or female worker is concerned about workplace reproductive hazards.

Name _____ Rank/Rate _____ Command/Shop _____

Brief description of job duties (not job title) _____

Supervisor _____

CHECK ALL THAT ARE APPROPRIATE

Workplace: _____ shipboard _____ shop _____ office _____ outdoors _____
_____ other

<u>HAZARDS(specify)</u>	<u>WORKER EXPOSED</u>	<u>WORKER IN</u>
<u>MED SURVEILLANCE</u>		

CHEMICAL

Solvents _____ no _____	yes _____ no _____	yes _____
Metals _____ no _____	yes _____ no _____	yes _____
Pesticides _____ no _____	yes _____ no _____	yes _____
Antineoplastics _____ no _____	yes _____ no _____	yes _____
Anesthetics _____ no _____	yes _____ no _____	yes _____
Other _____ no _____	yes _____ no _____	yes _____

PHYSICAL

Heat _____ no _____	yes _____ no _____	yes _____
Non-ionizing radiation _____ no _____	yes _____ no _____	yes _____
Noise _____ no _____	yes _____ no _____	yes _____
Vibration _____ no _____	yes _____ no _____	yes _____

BIOLOGICAL (infectious agents) _____ no _____	yes _____ no _____	yes _____
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OTHER HAZARDS(specify)

Appendix 29-C

Enclosure (1)

CHAPTER 30

INDOOR AIR QUALITY MANAGEMENT

3001. Discussion

a. Poor indoor air quality (IAQ) detracts from the quality of the work environment. Problems such as uncomfortable air temperature and humidity can decrease productivity. To increase the level of comfort and productivity in the work environment, make an effort to evaluate, maintain and improve IAQ.

b. Multiple causes of poor IAQ exist, any one of which could decrease the quality of the work environment. Some examples are:

(1) Unacceptable Humidity Ranges. Low humidity may lead to dryness and irritation of the nose, throat, skin and eyes. High humidity aids in the growth of certain molds. Susceptible individuals can experience allergic reactions to mold spores and particulate matter from the breakdown of mold protein.

(2) Insufficient Ventilation. Lack of sufficient fresh air leads to high carbon dioxide concentrations in work spaces. Lack of fresh air may cause fatigue, drowsiness, poor concentration and the sensation of temperature extremes without actual temperature changes. Increased CO₂ levels are an indicator of poor ventilation. Carbon dioxide levels are not correlated with other contaminant levels, but with the ability of the ventilation system to provide and circulate fresh air, dilute, remove and recirculate "stale" air. Reference 30-1 states that between 15 and 33 percent of the population will have symptoms when the level of CO₂ is between 600 and 800 parts per million (ppm). Between 33 and 50 percent become symptomatic between 800 and 1000 ppm, and virtually everyone will have some or all symptoms when the level is above 1500 ppm.

(3) Off-gas Chemicals. Many modern office furnishings and equipment off-gas chemicals. Adhesives, carpeting, upholstery, manufactured wood products, copy machines, pesticides and cleaning agents are examples of items that off-gas.

(4) Tobacco Smoke. Smoking and second hand smoke, otherwise known as environmental tobacco smoke (ETS), contribute to poor IAQ. According to the American Cancer Society, tobacco smoke contains more than 4,000 different chemical compounds, including about 43 carcinogens. ETS causes eye, nose and throat irritation; headaches; and bronchitis. In 1986, approximately 23,000 U.S. nonsmokers died from lung cancer. The U.S. Surgeon General attributed a substantial number of those deaths to ETS. In addition, ETS contributes to heart disease.

(5) Biological Contamination. Biological contaminants such as bacteria, molds, pollen and viruses may be present in stagnant water, air ducts, humidifiers and drain pans. Water-damaged material and insect and bird droppings contribute to biological contamination. Biological contaminants can trigger allergic reactions, some types of asthma and can cause some common infectious diseases.

(6) Combustion Products. Combustion products, such as carbon monoxide and nitrogen oxides can be released by vehicle exhaust, improperly burning furnaces, appliances and ETS.

(7) Building Modifications. Physical modifications within buildings usually generate dust. Improper isolation techniques can release asbestos, lead and other contaminants into the renovated building's ventilation systems.

c. Proper designs for new and renovated buildings precludes many IAQ problems. However, modified structures may experience heating, ventilating and air conditioning (HVAC) problems (e.g., HVAC not capable of providing adequate fresh air for new uses of the space).

3002. IAQ Investigation Approach

a. Individuals working in buildings with indications of poor IAQ shall report the problem(s) to their immediate supervisors. If the Navy maintains the building, the appropriate supervisor shall coordinate all contact with the designated facilities maintenance activity (e.g., public works center (PWC)/public works lead activity (PWLA), or first lieutenant) and the activity navy occupational safety and health (NAVOSH) manager. If the activity is unable to determine the cause of the problem, the NAVOSH manager shall request the cognizant industrial hygiene service to initiate an IAQ investigation. Reference 30-2 provides guidance on indoor air quality evaluations.

b. The Chief, Bureau of Medicine and Surgery (BUMED) Consultative Assistance Team (CAT) shall assist in IAQ investigations beyond the scope of the cognizant industrial hygiene service. BUMED will determine whether the problem is primarily health-related or engineering-related, or both and will request assistance from appropriate sources as needed (e.g., NAVFACENGCOM). Paragraph 0806 discusses CAT capabilities and functions.

c. If the building contains Navy personnel, but is maintained by a private enterprise, report the problem(s) to the appropriate facilities maintenance organization. If there is no solution, contact the NAVOSH manager and follow the process described in paragraphs 3002a and 3002b.

3003. Environmental Tobacco Smoke

a. A prime source of poor IAQ is environmental tobacco smoke. Many non-smokers find ETS offensive. The National Institute for Occupational Safety and Health (NIOSH) in reference 30-3 states that the preferable method to protect nonsmokers is the elimination of smoking indoors.

b. The Department of Defense (DoD) mandates smoke free workplaces in reference 30-4. U.S. Navy policy on ETS is to protect all personnel in working and public living environments from involuntary exposure to ETS. Navy activities shall:

(1) Prohibit smoking in all Department of the Navy (DON) vehicles, aircraft and work buildings. This applies to all Navy and Marine Corps (USMC) active duty, civilian personnel, their dependents and visitors in DON-controlled locations.

(2) Permit smoking only in individually assigned family and bachelor living quarters and in Navy lodge and USMC hostess house rooms designated for smoking except when a common HVAC system serves individual housing units. In such circumstances, commanding officers should make reasonable efforts to designate sufficient smoking quarters for smoking members. Do not recirculate air from smoking quarters with air entering nonsmoking quarters.

(3) Prohibit smoking in common spaces of multiple housing units (e.g., family housing apartment complexes, bachelor quarters, Navy lodges, USMC hostess houses, etc.). Any space within a building common to all occupants and visitors such as corridors, elevators, lobbies, lounges, stairways, rest rooms, cafeterias, snack bars, barber shops, laundry rooms, etc. is defined as common space.

(4) Not locate outdoor areas designated for smoking in areas commonly used by nonsmokers. Locate the smoking area away from supply air intakes and building entryways/egresses to prevent ETS entering the building.

c. The Federal Labor Relations Authority for Washington, D.C., in reference 30-5, has determined that unions could negotiate "hazardous duty" pay for those employees exposed to environmental tobacco smoke.

3004. Building Design and Maintenance

a. Activities can preclude many potential IAQ problems through proper planning in the design of new and renovated buildings. Single copies of reference 30-6 are available from NIOSH as publication 91-114. In addition, the EPA has established an IAQ Information Clearinghouse (1-800-438-4318).

b. Activities shall design and construct new and renovated buildings to meet the latest American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) standards, references 30-7 and 30-8. Reference 30-7 specifies the conditions in which at least 80 percent of the occupants will find the environment thermally acceptable. Reference 30-8 specifies the minimum ventilation rates and recommends indicator levels for IAQ that should provide occupants with an acceptable level of comfort and minimize the potential for adverse health effects.

c. Activities shall ensure that building designs properly locate air intakes and exhaust vents or stacks during new and renovated building construction.

(1) Do not place fresh air intakes above loading docks. This avoids pulling truck exhaust and odor from dumpsters directly into the building. Place fresh air intakes on the prevailing wind side of the building.

(2) Place exhaust vents on the opposite side of the building from fresh air intakes. Do not locate intakes and exhaust vents in close proximity to each other.

(3) Extend all exhaust stacks or chimneys beyond the roof line of the building. They should attain sufficient height to ensure that exhaust gases release into the true airflow over the building. If located lower than the true airflow, exhaust gases could swirl at the edges of the building and be pulled back inside through a fresh air intake.

(4) Do not place caps over exhaust stacks or chimneys. Use bird and debris screens over all HVAC in-take and exhaust openings.

d. Building designers frequently use modular office systems to conserve space. These systems often block airflow to parts of the office. During the design and purchasing process, confirm that the modular office systems are compatible with the airflow patterns proposed by the

HVAC engineers. The ASHRAE standard (see reference 30-8) for offices of 20 cfm of fresh air/occupant is based on a maximum occupancy of seven people/1,000 square feet. The designer shall not reduce airflow where there are fewer than seven people. Increase airflow per the ASHRAE standard if the occupancy is greater than seven people/1,000 square feet.

e. Design new and renovated buildings to ensure HVAC systems are accessible for maintenance actions, especially preventive maintenance.

f. Personnel shall not make unauthorized modifications to the HVAC systems (e.g., by blocking off vents, cutting into duct work to create new vents, removing inspection panels and ceiling tiles, etc.). Personnel shall report ventilation problems according to the guidance given in Paragraph 3002.

g. Do not modify HVAC systems for energy conservation in such a way as to affect adequate air quality (e.g., sealing outdoor air intakes).

h. To help maintain good IAQ, commanding officers shall develop and implement effective programs of routine inspection and preventive maintenance of all HVAC systems and spaces.

3005. Responsibilities

a. Echelon Two and other headquarters commanders shall provide guidance and assistance to subordinate commands to ensure the effectiveness of this program.

b. BUMED shall:

(1) When appropriate, request that BUMED CAT be augmented by the Naval Facilities Engineering Service Center (NFESC) ventilation engineering personnel.

(2) Budget adequate resources for medical facilities to support this policy.

c. Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) shall:

(1) Augment BUMED CAT with NFESC ventilation engineers when requested.

(2) Ensure that building construction and modification plans reflect consideration of IAQ issues and comply with requirements described in paragraph 3004.

(3) Ensure that HVAC systems in new buildings meet the specifications in the ASHRAE standards contained in references 30-7 and 30-8.

d. Commanders, Commanding Officers and Officers in Charge shall:

(1) Establish smoke-free buildings and zones.

(2) Ensure that IAQ issues are considered in the design of new buildings.

(3) Coordinate with COMNAVFACENGCOM to ensure that new building design adheres to the ASHRAE standards contained in references 30-7 and 30-8.

(4) Develop and implement an effective program of routine inspections and preventive maintenance of all HVAC systems and spaces, including HVAC accessibility per paragraph 3004e.

(5) Ensure that employee concerns or complaints of IAQ problems are investigated and resolved in a timely manner using the procedures in paragraph 3002.

(6) Ensure HVAC systems meet paragraph 3004 requirements.

Chapter 30

References

30-1. AFOEHL Report 90-169CA00111KGA from Brooks, AFB. (NOTAL)

30-2. NEHC Technical Manual, Industrial Hygiene Field Operations Manual, latest revision

30-3. U.S. Department of Health and Human Services (DHHS), National Institute for Occupational Safety and Health (NIOSH) Publication No. 91-108 of June 1991, Current Intelligence Bulletin 54: Environmental Tobacco Smoke in the Workplace - Lung Cancer and Other Health Effects. (NOTAL)

30-4. DOD Instruction 1010.15 of 1 Feb 01, Smoke-Free DoD Facilities. (NOTAL)

30-5. SECNAVINST 5100.13B of 11 Feb 98, Navy and Marine Corps Tobacco Policy

30-6. Federal Labor Relations Authority, Case No. 0-NG-1947-1949 of 13 December 1991, Vol. 42. (NOTAL)

30-7. American Society of Heating, Refrigerating, and Air-Conditioning Engineers Standard ANSI/ASHRAE 55-1992 (with ANSI/ASHRAE Addendum 55a-1995), Thermal Environmental Conditions for Human Occupancy (NOTAL)

30-8. American Society of Heating, Refrigerating, and Air-Conditioning Engineers Standard ANSI/ASHRAE 62-1989 (with ANSI/ASHRAE Addendum 62a-1990, Ventilation for Acceptable Indoor Air Quality (NOTAL).

30-9. American Society of Heating, Refrigerating, and Air-Conditioning Engineers Standard 62-1989, *Ventilation for Acceptable Indoor Air Quality* (NOTAL)

CHAPTER 31

WEIGHT HANDLING SAFETY

3101. Discussion

Safe and reliable weight handling is critical to the operation of the Navy. The minimum requirements and applicable standards for the safe use of all types of weight handling (WH) and rigging equipment at Navy shore activities, and shore based commands, are summarized below.

3102. Program Requirements

a. Reference 31-1 provides weight handling policy and directs compliance with reference 31-2 for Navy shore activities and shore-based commands. Shore-based commands include the Naval Construction Force (NCF) and other operating forces that own or operate WH equipment ashore.

b. Reference 31-2 is a single source document and complies with references 31-3 through 8, which are the Occupational Safety and Health Administration (OSHA) standards applicable to WH and rigging equipment, and references 31-9 through 31-23, which are national consensus standards.

c. The commanding officer or officer in charge is responsible for ensuring safety of the activity's weight handling program which includes certification of equipment, training and qualification of personnel.

d. OSHA requires activities using cranes and derricks in longshoring operations, and floating cranes and floating derricks in shipbuilding, ship repair and shipbreaking to be certified by an OSHA accredited certification agency. References 31-3, 31-4, 31-5 and 31-6 address OSHA certification requirements. Activities shall use reference 31-2 as an alternate standard to the certification requirements for Navy-owned equipment, and the Navy Crane Center, Naval Facilities Engineering Command shall perform the certification. Non-floating cranes and derricks that activities use in shipbuilding, ship repair and shipbreaking do not require third party certification.

(1) Longshoring Definition. Reference 31-5 defines the term "longshoring operations" as "the loading, unloading, moving, or handling of cargo, ship's stores, gear, or any other materials, into, in, on, or out of any vessel." The certification program includes mobile cranes, placed aboard barges or other vessels, and used to transfer materials into, on, in, or out of a vessel.

(2) Certification Requirement. The Navy Crane Center shall certify all Navy-owned equipment requiring third party certification, unless CNO (N45) approves an alternative certification source. For contractor-owned equipment operated on Navy installations, a private OSHA-accredited certification agency shall provide the third party certification.

(3) Procedures. Reference 31-2 addresses specific procedures for third party certification.

e. Investigation and Reporting of WH Accidents. Reference 31-2 contains special reporting requirements concerning WH accidents.

3103. Responsibilities

a. Commander, Naval Facilities Engineering Command (COMNAVFACENGCOM) shall manage the Navy's WH programs ashore through its Navy Crane Center of Expertise, ensuring compliance with OSHA standards. Specific mission responsibilities include providing and maintaining policy to establish design standards and manage weight handling equipment and operations, auditing shore activity and shore-based command weight handling programs to ensure compliance, reviewing and approving crane alterations, issuing crane safety advisories, equipment deficiency notices and establishing training programs.

b. Reimbursable functions include:

- (1) Performing third party certifications
- (2) Providing technical assistance to solve unique weight handling problems
- (3) Acquiring new cranes or refurbishing existing cranes by contract.

These responsibilities are specifically addressed in reference 31-1.

c. Chief of Naval Education and Training (CNET) shall assist COMNAVFACENGCOM in establishing and maintaining weight handling training programs.

d. Commanders, Commanding Officers and Officers In Charge shall develop and implement WH and rigging programs per references 31-1 and 31-2 and adequately budget to ensure compliance.

e. Cognizant OSH Offices shall provide oversight of the safety program, including safety inspection, evaluations, assessments and audits, risk assessments and mishap investigation.

Chapter 31

References

31-1. SECNAVINST 11260.2 of 10 Sept 97, Navy Weight Handling Program for Shore Activities (NOTAL)

31-2. NAVFAC P-307, Management of Weight handling Equipment

31-3. Title 29 Code of Federal Regulations (CFR) 1915, Occupational Safety and Health (OSH) Standards for Shipyard Employment

31-4. Title 29 CFR 1917, Safety and Health Regulations for Marine Terminals

- 31-5. Title 29 CFR 1918, Safety and Health Regulations for Longshoring"
- 31-6. Title 29 CFR 1919, Safety and Health Regulations for Gear Certification
- 31-7. Title 29 CFR 1910, OSH General Industry Standards
- 31-8. Title 29 CFR 1926, Safety and Health Regulations for Construction
- 31-9. American Society of Mechanical Engineers (ASME) B30.2-1996 (with addenda a,b and c), An American National Standard for Overhead and Gantry Cranes (To Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist) (NOTAL)
- 31-10. American Society of Mechanical Engineers (ASME) B30.4-1998 (with addenda a and b), An American National Standard for Portal, Tower and Pillar Cranes (NOTAL)
- 31-11. American Society of Mechanical Engineers (ASME) B30.5-2000, An American National Standard for Mobile and Locomotive Cranes (NOTAL)
- 31-12. American Society of Mechanical Engineers (ASME) B30.6-1995 (with addenda a, b, and c), An American National Standard for Derricks (NOTAL)
- 31-13. American Society of Mechanical Engineers (ASME) B30.7-1994 (with addenda a,b, and c) An American National Standard for Base Mounted Drum Hoists (NOTAL)
- 31-14. American Society of Mechanical Engineers (ASME) B30.8-1999, An American National Standard for Floating Cranes and Floating Derricks, (NOTAL)
- 31-15. American Society of Mechanical Engineers (ASME) B30.9-1996 (with addenda a, b, and c) An American National Standard for Slings, (NOTAL)
- 31-16. American Society of Mechanical Engineers (ASME) B30.10-1999, An American National Standard for Hooks, (NOTAL)
- 31-17. American Society of Mechanical Engineers (ASME) B30.11-1998 (with addenda a) An American National Standard for Monorail and Underhung Cranes, (NOTAL)
- 31-18. American Society of Mechanical Engineers (ASME) B30.16-1998, An American National Standard for Overhead Hoists (Underhung), (NOTAL)
- 31-19. American Society of Mechanical Engineers (ASME) B30.17-1998 (with addenda a) An American National Standard for Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist), (NOTAL)
- 31-20. American Society of Mechanical Engineers (ASME) B30.20-1999, An American National Standard for Below-the-Hook Lifting Devices, (NOTAL)
- 31-21. American Society of Mechanical Engineers (ASME) B30.21-1999, An American National Standard for Manually Lever Operated Hoists, (NOTAL)

OPNAVINST 5100.23F
15 July 2002

31-22. American Society of Mechanical Engineers (ASME) B30.22, An American National Standard for Articulating Boom Cranes, (NOTAL)

31-23. Wire Rope Sling Users Manual published by the Wire Rope Technical Board

CHAPTER 32

SAFETY AND OCCUPATIONAL HEALTH AWARDS PROGRAM ASHORE

3201. Purpose

To issue the policy and procedures for selecting the winners of the Chief of Naval Operations (CNO) Safety and Occupational Health (SOH) Shore Safety Awards.

3202. Applicability

This chapter applies to all U. S. Navy shore establishments and activities.

3203. Policy

CNO policy requires military and civilian personnel to apply safe and healthful practices in all their daily activities. To recognize outstanding efforts in risk management and mishap prevention, the CNO Safety and Occupational Health Shore Activity Awards Program provides recognition to an Echelon Two command with the best overall command SOH program record; to activities for attaining excellent records in SOH; and to individual SOH professionals who have made significant contributions to a command/ activity or overall Navy SOH program. The awards recognize outstanding contributions to operational readiness and conservation of resources through effective risk management. In addition to outstanding safety records, activities selected must have aggressive, innovative mishap prevention programs. These awards recognize excellence and are not to be confused with recognition for safety improvements (e.g., suggestion, invention, special achievement) under the provisions of the incentive awards program.

3204. Types of Awards

Appendix 32-A provides an explanation and selection criteria for CNO Safety and Occupational Health Awards Ashore. Appendix 32-B provides applicable formulas for the calculation of ashore mishap statistics. Awards are presented for excellence at the Echelon Two activity, and individual levels.

3205. Action

Activity commanders, commanding officers, or officers in charge shall develop and implement an activity safety awards program applicable to the mission and operations of the individual activity.

Echelon Two and Three headquarters commands are also encouraged to establish "in-house" safety awards of their own in line with the CNO award criteria to recognize respective activities and individuals within each claimancy.

Chapter 32

References

32-1. SECNAVINST 5100.15A of 22 Sept 95, Secretary of the Navy Awards for Achievements in Safety Ashore

Appendix 32-A

Awards Selection Criteria

Description

Chief of Naval Operations (CNO) Safety and Occupational Health (SOH) Shore Safety Award will be presented annually on a fiscal year basis to headquarters and shore activities (including Fleet operational/support units located ashore) based on the overall quality of their safety and occupational health programs, mishap prevention records, and contributions to the Navy's SOH program. In addition, individual safety and occupational health professionals will be recognized for their contributions to their command/activity and/or the Navy's SOH program through CNO Individual Awards for SOH and the Jerry E. Shultz Memorial Safety Award.

Award Categories

a. Headquarters. All Echelon Two or Echelon Three commands assigned primary support responsibility for subordinate activities or commands (e.g. TYCOMS); are eligible.

b. Activity

(1) Industrial – Those activities in the 50 United States whose primary mission is the production, maintenance, or rehabilitation of Navy equipment, material or facilities. These include aviation depots, public works centers, shipyards, and ship repair facilities. Test centers and research and development (R&D) facilities will compete in the non-industrial category.

(a) Small - activities with military and civilian working population of 1 - 1,000

(b) Medium - activities with military and civilian working population of 1,001 - 3,000

(c) Large - activities with military and civilian working population of 3001 and greater

(2) Non-Industrial – Activities such as naval stations, air stations, supply depots, training centers, and medical centers in the 50 United States will compete in this category.

(a) Small - activities with military and civilian working population of 1- 800

(b) Medium - activities with military and civilian working population of 801 - 2,000

(c) Large - activities with military and civilian working population of 2,001 and above

(3) Industrial - Outside of the 50 United States.

(4) Non-industrial - Outside of the 50 United States.

(5) Fleet Operational/Support Unit Ashore - one award - for those commands located ashore with sea or shore duty unit identification codes that are designated as fleet operating or fleet support units and not eligible for the surface ship award. The safety program must be based on the shore safety requirements of OPNAVINST 5100.23F.

d. Individual – There are two individual award categories. The CNO Individual Award for SOH will be presented to one military and one civilian manager and one civilian specialist/technician at the Headquarters (Echelon Two or Three), region, and individual activity level for a total of nine (9) awards. The nine CNO SOH award winners will compete for the Jerry E. Shultz Memorial Safety Award. The Jerry E. Shultz Memorial Safety Award will be presented to the one individual determined to have contributed most significantly to the command or Navy SOH Program. All civilian nominees must be SOH professionals performing safety manager or safety specialist/technician duties. Military nominees must be officially assigned to a perform safety manager or safety specialist/technician duties.

Eligibility

a. Headquarters - Echelon Two or Three's as described in the previous paragraph are eligible for the headquarters award.

b. Activity awards –

(a) Activities are considered to have a minimally compliant program unless indicated otherwise during an IG/NOIU inspection or the immediate superior in command (ISIC) command inspection. IG/NOIU or the immediate superior in command (ISIC) must have evaluated the activity within the award year or two preceding fiscal years.

(2) In addition, nominees must have:

(a) A 5 year declining mishap trend in combined total case rates and lost time case rates for on-duty military and civilian mishaps and in total case rates and lost time case rates for off-duty military mishaps; OR the award fiscal year rate must be the best or the second best year of the five

(b) An award year for which the number and cost of government motor vehicles mishaps are less than the average of the previous 4 years. Calculations for mishap trends shall be determined by use of the formulas found in appendix 32-B.

NOTE:

Regions are not currently considered for awards due to the vast differences in region composition, configuration and a lack of sufficient data to fairly evaluate accomplishments on a regional level. However, individual activities within a region may compete for the activity awards, if desired, providing the activity can meet the requirements specified in SECNAVINST 5100.15A and outlined above. Region consideration will be the subject of a future update.

c. Individual Awards –

(1) CNO SOH Award - Nominees must be a headquarters (military and civilian), regional, or an activity safety and occupational health professional (one award for a civilian performing safety manager duties and one civilian performing safety specialist/technician duties (total of nine) as defined in chapter 3 of this instruction and must have made significant contributions to either the individual command program or to the overall Navy SOH program. The award will be based on contributions made during the previous 3 years, including the current fiscal year.

(2) Jerry E. Shultz Memorial Safety Award – The nine winners of the CNO SOH award will compete for the Jerry E. Shultz award. The award will be presented to the one individual (military or civilian) determined to have contributed most significantly to the command or Navy SOH program during the previous 3 years, including the current fiscal year.

Nomination and Evaluation Criteria

a. Headquarters Awards. The CNO Shore Safety Award for a headquarters activity will be awarded to one Echelon Two or Three annually.

(1) Headquarters activities desiring to be considered must submit a nomination package in narrative style, single-spaced, and of no more than five single-sided pages that discusses:

(a) The quality and quantity of support provided to subordinate activities;

(b) A summary of the headquarters contributions to Fleet operational readiness and the Navy's SOH program; and

(c) Any special headquarters initiatives to improve safety and health performance of subordinate commands or the Navy's SOH program.

(2) Nominations packages shall be submitted directly to CNO (N454) no later than 31 December annually. Final selection will be by a board of no less than five members consisting of a representative from CNO (N45) and representatives from the CNO NAVOSH Quality Council. Representatives selected from the CNO NAVOSH Quality Council may not be from a headquarters activity under consideration for the award. The selection board shall meet no later than 15 January of each year to select a winner.

b. Activity Award. The nomination package shall be completed using guidance provided below.

(1) The nomination package shall be in narrative style. It shall consist of single-spaced text and may use graphics; e.g., tables, charts, diagrams, and/or photographs, to clarify accomplishments. When printed, the text and graphics, including the information below, shall consist of no more than 16 single-side printed pages. The package shall include:

Appendix 32-A

(a) A summary/explanation of what is being done toward continued mishap reduction

(b) Details on unique/special initiatives. As the award is for total command involvement/support of the SOH Program, unique/special initiatives are to include all areas of the command in support of the program, i.e. motor vehicle, off-duty/recreational, fire, partnering with the community and other government activities and organizations, community involvement, initiatives in support of the SOH Program that aren't required but will enhance the command program such as purchase of ergonomic work stations or equipment; development of programs and accomplishments beyond the minimum required by this instruction.

(c) Number of tenant commands receiving SOH support and total number of personnel at these tenant commands.

(d) A copy of the NOIU or ISIC inspection cover letter and a 5 year (current year plus four previous years) mishap trend analyses that include total case rates and lost time case rates for both on-duty military and civilian mishaps and off-duty/recreation mishaps, number of government motor vehicle mishaps and cost, and FECA costs per charge back year (CBY).

(2) Nomination letters shall be forwarded to the Echelon Two via the appropriate chain of command by 30 November. Echelon Two commands shall evaluate the nominations and forward candidates that meet the CNO criteria in each award category to COMNAVSAFECEN (Code 41) by 31 December annually. In the case of multiple winners in a given category, the Echelon 2 command must also designate the activity it wants considered for the SECNAV competition. Only nominations from the Echelon Two commands will be accepted.

(c) Selection of winners and runner-up in each category shall be in accordance with the following:

(d) COMNAVSAFECEN shall conduct a preliminary review of all activity nominations to ensure all nominees meet the minimum requirements specified in this section. In addition, all nominees that have received endorsement from the Echelon Two as the headquarters nominee for the Secretary of the Navy Award for Achievement in Safety Ashore will also be evaluated against the criteria established by SECNAVINST 5100.15A. All nominees meeting the requirements of this instruction shall be forwarded to CNO for consideration of the CNO Award for Safety Ashore. COMNAVSAFECEN shall also annotate those determined to be best qualified for the SECNAV Award for Achievement in Safety Ashore.

(e) All nominees forwarded by COMNAVSAFECEN will be evaluated by a CNO selection committee consisting of a representative from CNO (N454), COMNAVSAFECEN and three additional representatives from the CNO NAVOSH Quality Council that will meet no later than 15 January annually to select winners in each category.

c. CNO Individual Award for SOH - Nominations for the CNO Individual Award for SOH may be by individual nomination, either by the individual themselves or by others, or from the activity. Submittals must be from the activity to which the individual is assigned and be routed via the appropriate chain of command for endorsement. No more than a three-page nomination letter stating the contributions the individual has made to the command/activity program or the

overall Navy program shall be submitted directly to CNO (N454) by 31 December annually. Only those written nominations received at CNO (N454) by 31 December will be considered. A CNO selection committee will evaluate all nominations. The selection committee will be composed of a representative from CNO (N45) and at least four other representatives from the Navy SOH community. None of the committee members may be under consideration for the award. The selection committee shall meet no later than 15 January annually to evaluate and select the best three nominees in each category and select a winner.

d. Jerry E. Shultz Memorial Safety Award- Only those individuals who received the CNO SOH Award will be considered for the Jerry E. Shultz Memorial Safety Award. After determination of the winners in each category, the CNO Individual Awards selection committee shall then determine the one individual who has contributed most significantly to the command or Navy SOH Program. That individual will receive the Jerry E. Shultz Memorial Safety Award.

Presentation of Awards and Recognition of Nominees

a. The Director, CNO (N4), will present the CNO Award for Safety Ashore to winners at a special ceremony to be held in Washington, D.C. Winners of these awards will also be recognized during the annual NAVOSH Professional Development Conference (NAVOSH PDC). All winners will also be announced by CNO via naval message and recognized in other Navy publications, as appropriate. Winners receiving specific Echelon Two SECNAV award endorsement, by respective category, will be forwarded to Secretary of the Navy for consideration for the Secretary of the Navy Award for Achievement in Safety Ashore. The winners shall also be announced by CNO (N4) via official naval message and recognized in official Navy publications, as appropriate.

b. Winners and finalists of the CNO Individual Award for SOH and the Jerry E. Shultz Memorial Safety Award will be announced at the annual NAVOSH PDC. The winner of the Jerry E. Shultz Memorial Safety Award will be presented a trophy or plaque and their name will be engraved on a permanent plaque to be displayed at CNO (N454). The highest-ranking naval officer available in the area where the annual NAVOSH PDC is meeting shall present awards. The winners shall also be announced by CNO (N4) via official naval message and recognized in official Navy publications, as appropriate.

SECNAV Awards

The Secretary of the Navy (SECNAV) Activity Award is governed by SECNAVINST 5100.15A. Nominating packages for the CNO Award for Safety Ashore may also be forwarded to compete in their respective category for the SECNAV award. Echelon Two's must specifically recommend and endorse packages to be forwarded for SECNAV competition. Echelon Two's shall recommend only one command for each award category to compete for the SECNAV award

Appendix 32-B

Formulas for Calculation of Mishap Trends

1. TOTAL CASE RATES:

a. Military and Civilian On-Duty Total Case Rate:

$$\frac{\text{*Total Number of Injuries X 200,000}}{\text{End Strength X 2000HRS}}$$

b. Military Off-Duty Total Case Rate:

$$\frac{\text{*Number of recorded off-duty injuries X 200,000}}{\text{End Strength X 3760 HRS}}$$

2. LOST TIME CASE RATES

a. Military and Civilian On-Duty Lost Time Case Rate:

$$\frac{\text{**Number of all On-duty lost time/deaths X 200,000}}{\text{End strength X 2000 HRS}}$$

b. Military Off-duty Lost Time Case Rate:

$$\frac{\text{**Number of off-duty lost time/deaths X 200,000}}{\text{End strength X 3760 HRS}}$$

*Number of injuries/death (deaths, lost time, no lost time, first aid) recorded on the Log of Navy Injuries and Illnesses.

**Number of lost time/death mishaps recorded on the Log of Navy Injuries and Illnesses.

GLOSSARY

Abate - To eliminate or reduce permanently an unsafe or unhealthful working condition by coming into compliance with the applicable NAVOSH standard.

Accident - Any unplanned or unexpected event causing material loss or damage or causing personnel injury or death.

Accident Investigation - The investigation of the facts surrounding the causes of an accident.

Accident Report - The formal report of an accident investigation.

ACGIH - American Conference of Governmental Industrial Hygienists.

Acquisition - The acquiring by contract with Navy funds of supplies or services (including construction) by and for the use of the Federal government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated. Acquisition begins at the point when agency needs are established and includes the description of requirements to satisfy agency needs, solicitation and selection of sources, award of contracts, contract financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract.

Action Level - Unless otherwise specified in a NAVOSH standard, one-half the relevant PEL, TLV, etc.

Activity - A physical location ashore, under a single higher authority command, where business is conducted or where services or operations are performed.

Acute - Severe, usually crucial, often dangerous in which rapid changes are occurring. An acute exposure runs a comparatively short course.

Administrative Contracting Office (ACO) - A designated contracting officer performing administrative functions under ASPR 1-406 (NOTAL).

Administrative Control - Any procedure that limits daily exposures to toxic chemicals or harmful physical agents by control of the work schedule.

Agency - An Executive Department, as defined in 5 U.S.C. 101, or any employing unit or authority of the government of the United States not within an Executive Department to which the provisions of Executive Order 12196 are applicable.

Ambient - Of the surrounding or encircling area. Normal ambient pressure or atmosphere refers to the normal conditions for a particular location outside a confined or enclosed space.

ANSI - American National Standards Institute, a national consensus standard-developing organization.

Anthropometric - Pertaining to the measurement of the size and proportions of the human body.

Asbestos-Containing Material (ACM) Any material containing more than one percent asbestos as defined in 29 CFR parts 1910.1001, 1926.1101, and 1915.1001. ACM can be divided into three major categories:

a. Thermal System Insulation (TSI) - ACM applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat energy transfer or water condensation.

b. Surfacing - ACM that is sprayed on, troweled on or otherwise applied to surfaces such as acoustical plaster on ceilings and fireproofing materials on structural members or other materials on surfaces for fireproofing, acoustical, or other purposes.

c. Miscellaneous - ACM not included in the definition for TSI or surfacing.

Asbestosis - A disease involving scarring of the lung caused by the accumulation of asbestos fibers. The time between exposure and detection is usually 15 years or longer. Asbestosis is not likely to be found in employees who do not meet the current exposure criteria.

Atmosphere Immediately Dangerous to Life or Health (IDLH) - Any atmosphere that poses an immediate hazard to life or produces immediate irreversible debilitating effects on health.

Attendant - An individual stationed on the outside of a confined space for the purpose of monitoring the activities of those inside and requesting assistance in the event of an emergency.

Audiogram - A graph or table showing hearing threshold levels as a function of frequency.

Audiometer - Instrument used to measure hearing sensitivity using pure tones.

A-Weighted Sound Level - Sound level in decibels as measured on a sound level meter using an A-weighted network. This network attempts to reflect the human ear's decreased sensitivity to low frequency sounds.

Blanking or Blinding - The absolute closure of a pipe, line, or duct by fastening across its bore a solid plate or cap which completely covers the bore; which extends at least to the outer edge of the flange at which it is attached; and which is capable of withstanding the maximum upstream pressure.

Bloodborne Pathogens - Pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) and Human Immune Deficiency Virus (HIV).

Capture Velocity - That velocity at a distance from a hood, necessary to overcome dispersive forces and capture the contaminant.

Ceiling Value - An exposure to toxic materials which cannot be exceeded for any length of time.

Glossary

Chronic - Persistent, prolonged, repeated.

Class I Asbestos Work - Activities involving the removal of thermal system insulation or surfacing ACM/PACM.

Class II Asbestos Work - Activities involving the removal of ACM which is neither TSI or surfacing ACM. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

Class III Asbestos Work - Repair and maintenance operations, where ACM, including TSI and surfacing ACM and PACM, is likely to be disturbed (see definition of disturbance).

Class IV Asbestos Work - Maintenance and custodial activities during which employees contact but do not disturb ACM and PACM and activities to clean up dust, waste and debris from Class I, II, and III activities.

Claustrophobia - An abnormal fear of being in a confined or enclosed space.

Cognizant Security Office - The Defense Contract Administrative Services Regional Office of Defense Logistics Agency having contract administrative service authority over the geographical area in which the contractor workplace is located.

Cold Work - Work that does not involve potential ignition sources. See Hot Work.

Command - The headquarters and all subordinate commands, activities/installations, units, forces and employees.

Commander - The Navy official in charge of a naval shore command, activity or installation, office or unit. Unless specified to the contrary, the term is synonymous with commander, commanding officer (CO), officer in charge (OIC), chief, director, or other title for the head of the organization.

Concentration - The quantity of a substance per unit volume (in appropriate units).

The following are examples of concentration units:

mg/m ³	milligrams	for vapors,
per cubic		gases, fumes,
meter		or dusts

ppm	parts per	for vapors or
million		gases

fibers/cc	fibers per	asbestos
cubic centimeter		

Confined Space - A space that is not designed for routine and/or continuous occupancy, is large enough and so configured that an employee can bodily enter to perform work, and is poorly ventilated and/or has limited or restricted means for entry or exit.

Confined Space Entry Permit - A special written permit/form issued by the CSPM, or a qualified person under the direction of the CSPM, which authorizes entry into certain confined spaces under a given set of conditions and safety precautions.

Confined Space Program Manager (CSPM) - An individual who has successfully completed course number A-493-0030, Confined Space Safety, conducted by the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN) or equivalent training approved by the Echelon Two occupational safety and health manager, and has been appointed, in writing, by the commanding officer to implement a comprehensive confined space entry program (Non-Maritime).

Contaminant - A material or agent not normally present in the atmosphere, e.g., dust, fume, gas, mist or vapor, which can be harmful, irritating, or a nuisance.

Contractor Employee - An employee of a contractor performing work at a contractor workplace under a Navy contract.

Contractor Workplace - Any place on a Navy installation, located within the United States, its territories, or possessions, where work currently is being, recently has been, or is scheduled to be performed by contractor employees under a Navy contract, including a reasonable access route to and from the workplace. The term contractor workplace does not include any area structure, machine, apparatus, device, equipment, or material therein, with which a contractor employee is not required or reasonably expected to have contact nor does it include any working condition for which OSHA jurisdiction has been preempted under section 4(b)(1) of the OSHAct.

Cumulative Trauma Disorders (CTDs) - Health disorders arising from repeated biomechanical stress. Other terms that have been used for such disorders include "repetitive motion injury," "occupational overuse syndrome," and "repetitive strain injury." CTD are a class of musculoskeletal disorders involving damage to the tendons, tendon sheaths, and related bones, muscles, and nerves of the hands, wrists, elbows, shoulders, neck, and back. Disorders in this class include carpal tunnel syndrome, tennis elbow, tendinitis, tenosynovitis, DeQuervain's Disease, and low back pain.

dB(A) - A sound level reading in decibels as measured on the A-weighted network of a sound level meter. (See A-weighted Sound Level)

Decibel-dB - A unit used to express sound pressure levels; specifically, 20 times the logarithm of the ratio of the measured sound pressure to a reference quantity, 20 micro-pascals (0.0002 microbars)

Designated Safety and Occupational Health Official - The individual at the Secretary of the Navy level who is responsible for the administration of the Navy safety and occupational health program.

Detector Tube - A glass tube which utilizes a sensitive chemical (in a suspension of silica gel) which produces color change whenever contaminated air is pulled through the tube.

Disability - The incapacity, because of injury or illness in employment, to earn the wage which the employee was receiving at the time of such injury or illness.

Disabling Work/Duty Injury - Any impairment resulting from an accident or occupational disease which prevents a military person from performing his/her regularly established duty or work for a period of 24 hours or more, subsequent to 2400 on the day of injury or onset of illness; or causes a civilian employee of the Navy from performing work for a full shift on any day subsequent to the day of injury or onset of illness. (See Lost Workday Case)

Disturbance (Asbestos) - means activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag, in order to access a building or vessel component. In no event shall the amount of which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

Dosimeter - A device for measuring cumulatively the exposure of an individual over a period of time.

Dust - Small solid particles created by the breaking up of larger particles by processes such as crushing, grinding, or explosion. Examples of processes that generate dust: Use of machine shop tools, paint chipping, sanding, woodworking, and abrasive blasting.

Effectiveness of Corrective Action - The degree to which the proposed hazard abatement system can be expected to reduce the cited hazard. For health hazards, this would typically be expressed as the intensity of the hazardous chemical or physical agent remaining, in appropriate units, after the proposed abatement measure is operational. For safety hazards, effectiveness is expressed as "in full compliance" or "not in full compliance" with the applicable standard, if any.

Electric Field - A fundamental component of electromagnetic waves, which exists when a voltage potential difference exists between two points in space. (See Field Strength.)

Employee - Any person employed or otherwise offered, permitted, or required to work by a Navy command including both civilian and military personnel.

Employee/Personnel (Asbestos) Exposure - An exposure that would occur if respiratory protective equipment was not used.

Employment Accident - An accident occurring as a result of work performance or exposure to the work environment.

Engulf - To surround and capture an individual by a liquid or finely divided solid substance.

Entry - The act by which a person intentionally passes through an opening into a permit-required confined space and includes ensuing activities. The entrant is considered to have entered if any part of the entrant's face breaks the plane of an opening into the space.

Entry Supervisor - The supervisor of the employees authorized entry into a confined space.

Ergonomics - The study of the design of work in relation to the physiological and psychological capabilities of people. The aim of the discipline is the evaluation and design of facilities, environments, jobs, training methods, and equipment to match the capabilities of users and workers, and thereby to reduce the potential for fatigue, error, or unsafe acts.

Ergonomic Hazards - Workplace conditions that pose a biomechanical stress to a worker's body as a consequence of posture and force requirements, work/rest regimens, repetition rate, or other similar factors. Faulty workstation layout, improper work methods, or improper tools may contribute to such conditions.

Ergonomic Risk Factors - Conditions of a job, process, or operation that contribute to the development of CTD.

Ergonomist - A person who possesses a recognized degree or professional credentials in ergonomics or a closely allied field (e.g., human factors engineering) and who has demonstrated, through knowledge and experience, the ability to identify and recommend effective means of correction for ergonomic hazards in the work place.

Excess Hazardous Material (EHM) - Ready-for-issue hazardous material classified as excess and no longer needed by the generating activity.

Excursion Limit - A limitation on short-term exposures that are called for by industrial hygiene considerations, when toxicological data are unavailable.

Explosion Proof - An apparatus, device, or piece of equipment that is tested and approved for use in flammable or explosive atmospheres as defined in the National Electrical Code (NEC).

Explosive or Flammable Limits - The range of concentration of a material, expressed in percent in air, that will burn or explode if ignited. The lower explosive limit is the minimum percent by volume of a gas or vapor that, when mixed with air at normal temperature and pressure, will form a flammable mixture.

Facility - A separate, individual building, structure, or other form of real property, including land, which is subject to separate reporting under the Department of Defense real property inventory. (NOTE: This definition differs from that used elsewhere because it includes "land.")

Facility Requirements - The facilities required by an activity to perform its mission, tasks, and functions and to support assigned forces. Facility requirements are expressed normally as quantities of land, waterfront space, easements, types of buildings and structures, capacity of utilities, etc., in terms of units of measure. A facility requirement is an abstract specification and is not identifiable with a particular building or structure.

Far Field (Fraunhofer region, plane wave region) - The region far from an antenna, compared to the size of the antenna and the wavelength of the radiation, where the power decreases with the square of the distance from the source. In this region the radiation has the properties of a plane wave. (See Plane Wave.)

Federal OSHA Official - Investigator or compliance officer employed by, assigned to, or under contract to OSHA.

Field Strength - The magnitude of the electronic field (in volts/meter) of magnetic field (in amps/meter).

First Aid Case - A first aid case is a specific type of no lost time case, applicable to civilian employees only. It is a non-fatal traumatic injury or occupational illness or disease which meets one of the following criteria:

(1) A case that requires one or more visits to a medical facility for examination or treatment during working hours beyond the date of injury, as long as no leave or continuation of pay (COP) is charged to the employee and no medical expense is incurred.

(2) A case which requires two or more visits to a medical facility for examination or treatment during non-duty hours beyond the date of injury as long as no leave or COP is charged and no medical expense is incurred.

Forces Afloat - U.S. Navy surface ships and submarines including embarked troops, staffs, detachments, and aircraft squadrons.

Frequency - The rate at which a sound source vibrates or makes the air vibrate determines frequency. The unit of time is usually 1 second and the term Hertz (Hz) is used to designate the number of cycles per second. Frequency is related to the subjective sensation of pitch. High frequency sounds (2000, 3000 and 4000 Hz) are high pitched.

Fumes - Fumes are found when the material from a volatilized solid condenses in cool air. The solid particles that are formed make up a fume that is extremely fine - usually less than 1.0 micrometer in diameter. In most cases, the hot vapor reacts with the air to form an oxide.

Gas - Diffuse, formless fluid normally in a gaseous state.

Hazard - A workplace condition that might result in injury, health impairment, illness, disease, or death to any worker who is exposed to the condition, or damage or loss to property/equipment.

Hazard Category - A workplace condition as defined below:

(1) Category I - Catastrophic: The hazard may cause death or loss of a facility.

(2) Category II - Critical: May cause severe injury, severe occupational illness, or major property damage.

(3) Category III - Marginal: May cause minor injury, minor occupational illness, or minor property damage.

(4) Category IV - Negligible: Probably would not affect personnel safety or health, but is nevertheless in violation of specific criteria.

Hazard Control Assessment - An objective overall assessment for measuring the relative priority of hazard abatement projects in terms of a 3-digit dimensionless number. This assessment will be used to prioritize centrally funded projects.

Hazardous Chemical - Any chemical that is a physical hazard or a health hazard per 29 CFR Section 1910.1200 (c), and with some exceptions as specified in the Community Right to Know Law of 1986 (Superfund Amendments and Reauthorization Act (SARA), Title III). See "Hazardous Material."

Hazardous Material (HM) - For the purpose of preparing the Material Safety Data Sheet, a hazardous material is defined as a material having one or more of the following characteristics: (a) has a flashpoint below 200°F (93.3°C) closed cup, or is subject to spontaneous heating or is subject to polymerization with release of large amounts of energy when handled, stored, and shipped without adequate control; (b) has a threshold limit value below 1000 ppm for gases and vapors, below 500 mg/m³ for fumes, and below 30 mppcf for dusts; (c) a single oral dose which will cause 50 percent fatalities to test animals when administered in doses of less than 500 mg per kilogram of test animal weight; (d) is a strong oxidizing or reducing agent; (e) causes first degree burns to skin in short time exposure or is systematically toxic by skin contact; (f) in the course of normal operations, may produce dusts, gases, fumes, vapors, mists, or smokes with one or more of the above characteristics; (g) produces sensitizing or irritating effects; (h) is radioactive; or (i) the item has special characteristics which in the opinion of the manufacturer could cause harm to personnel if used or stored improperly.

Hazardous Material Information System (HMIS) - A computer-based information system developed to accumulate, maintain, and disseminate important characteristics of hazardous materials which exist throughout DoD.

Hazardous Substance (HS) - Any substance that, because of its quantity, concentration, or hazardous properties, may pose a substantial hazard to human health or the environment when purposely released or accidentally spilled.

Hazardous Waste (HW) - Any discarded or abandoned hazardous substance as defined in 40 CFR 261 or applicable state regulations where the State has been granted enforcement authority by EPA. It may include any discarded liquid, semi-solid, solid, or containerized gaseous material. Hazardous waste does not include EHM with expired shelf life unless determined as such by a Defense Reutilization and Marketing Office (DRMO).

Hazardous Waste Minimization (HAZMIN)- Consists of three parts:

- a. Avoiding HW generation by minimizing and controlling HM acquisition and use, and by applying best management, engineering, and equipment to Navy processes and procedures.
- b. Recycling HW to reduce it to a ready-for-use state.
- c. Treating HW to reduce the volume or to reduce it to a non-hazardous state.

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Headquarters Command - An Echelon Two or other headquarters organization assigned primary support responsibility for subordinate activities or commands. Primary support responsibility is the provision of resources (funds, manpower, facilities, and material) for shore activities to enable them to carry out their mission. Primary support includes administrative, personnel, and material support and guidance in such matters as internal organization, process, procedures, budgeting, staffing, and facilities. Support includes the responsibility to assist in evaluating the operational effectiveness of shore activities and responding to other requests for technical assistance. Examples of headquarters commands are the systems commands headquarters, Fleet Commanders in Chief, and the Field Support Activity for CNO-assigned activities.

Hearing Level - Amounts in decibels by which the threshold of audition for an ear differs from zero decibels (dB) for each frequency -- a standard audiometric threshold derived from normal-hearing young adults.

Hertz - Unit of frequency.

High-Efficiency Particulate Air (HEPA) Filter - A filter capable of trapping and retaining at least 99.97 percent of 0.3 micrometer diameter mono-dispersed particles.

Hot Work - Hot work includes all flame heating, welding, torch cutting, brazing, carbon arc gouging or any work which produces heat, by any means, of 400°F or more; or, in the presence of flammables or flammable atmospheres, use of ignition sources such as spark or arc producing tools or equipment; static discharges, friction, impact, open flames or embers; and non-explosion-proof lights, fixtures, motors, or equipment. See Cold Work.

Human Factors - The application of behavioral principles to the development of technological systems to make such systems work more efficiently and productively and to make it easier for people to operate and maintain these systems.

Humanitarian Respirator Use - Provision of a respirator in the absence of any regulatory requirement.

Hz - Abbreviation of Hertz.

IDLH - Immediately Dangerous to Life or Health. An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Illness - Any abnormal condition or disorder, other than one resulting from an injury, caused by exposure to conditions associated with the occupational environment.

Imminent Danger - A condition that immediately threatens to cause the loss of life or serious injury or illness of an employee.

Impulse or Impact Noise - Sound of short duration, usually less than 1 second, with an abrupt onset and rapid decay. Also, those variations in noise levels that involve maxima at intervals greater than 500 milliseconds. Where the intervals are less than 500 milliseconds, the noise is considered continuous.

Incident (Confined Space) - A mishap resulting in death, injury, property damage and/or situations involving unauthorized (inadvertent or willful) entry into a PRCS, disregard of permit requirements, improper testing, or issuance of a permit without evaluation of space conditions.

Inerting - A process in which an inert or nonflammable gas is introduced into an atmosphere to such a degree that the oxygen/flammable vapor content of the atmosphere will not burn or explode.

Injury - Traumatic bodily harm, such as a cut, fracture, burn, or poisoning, caused by a single or 1-day exposure to an external force, toxic substance, or physical agent.

Inspection - A comprehensive survey of all or part of a workplace in order to detect safety and health hazards as distinguished from routine, day-to-day evaluation and monitoring by local OSH personnel.

Installation - A facility or group of facilities located in the same vicinity, which support particular Navy functions. Installations may include locations such as stations, air stations, shipyards, etc., or may be vessels.

Intrinsically Safe Equipment - Equipment which, by design, does not have or is not capable of producing sufficient levels of energy to cause ignition.

Laboratory - A term referring to research laboratories and chemical analytical laboratories that are managed and staffed by academically-trained and -qualified professionals and chemists. This term, as used in this instruction, does not include entire installations having "laboratory" in their organization name, or material laboratories that mainly characterize the physical properties of materials. The term is intended to describe functional room(s) or area(s) where specific analytical and research tasks are performed by highly trained professionals under the supervision of highly trained and qualified, professional chemists.

Lost Time Case - A nonfatal traumatic injury that causes any loss of time from work beyond the day or shift it occurred; or a nonfatal illness/disease that causes disability at any time.

Lost Workday Case - Any impairment resulting from an accident or occupational disease which prevents a military person from performing his/her regularly established duty or work for a period of 24 hours or more, subsequent to 2400 on the day of injury or onset of illness; or prevents a civilian employee of the Navy from performing work for a full shift on any day subsequent to the day of injury or onset of illness.

Magnetic Field - A fundamental component of electromagnetic waves produced by a moving electrical charge. (See Field Strength.)

Maritime Operations - Operations on ships at sea or the following shore activities.

- a. Construction of ships, including the installation of machinery and equipment
- b. Repair of ships, including alterations, conversions, installations, cleaning, painting, and other maintenance

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- c. Breaking down of a ship's structure for the purpose of scrapping
- d. Loading, unloading, moving, or handling cargo into, in, on, or out of ships.

Material (Property) Damage - Mishap-related damage of facilities, equipment, or material (property) that a dollar expenditure would accrue to repair or replace.

Material Safety Data Sheet (MSDS) - OSHA Form 174 or an equivalent form containing the identical data elements, must be used by manufacturers of chemical products to communicate to users the chemical, physical, and hazardous properties of their product to comply with the OSHA Hazard Communication Standard, 29 CFR 1910.1200. The completed form identifies key information on the product: name, address, and emergency contact for the manufacturer; the identity of hazardous ingredients; physical/chemical characteristics; fire and explosion hazard data; reactivity data; health hazard data; precautions for safe handling and use; and control measures. It should be emphasized that OSHA Form 20 or DD-1813 forms are considered obsolete and should not be used for supplying MSDS information. All data submitted must comply with provisions of FED-STD 313C (NOTAL). See chapter 7.

Medical Documentation - A written statement from a licensed physician or other appropriate practitioner.

Medical Treatment - Treatment administered by a physician or health care provider under the standing orders of a physician. Medical treatment does not include first aid treatment even though provided by a physician or health care provider.

Mesothelioma - A rare tumor arising from the cells that line the cavities of the lungs, heart, and abdomen. It is usually associated with asbestos exposure, and may have a latent period as long as 30 to 40 years.

Military Personnel - All Navy military personnel on active duty (USN/USNR); Naval Reserve personnel (USNR-R) on active duty or in a drill status; Naval Academy midshipmen; Reserve Officer Training Corps (ROTC) midshipmen when engaged in directed training activities; and other DoD and Foreign National military personnel assigned to the Navy or embarked in Navy or Military Sealift Command vessels.

Military-Unique Equipment, Systems, Operations, or Workplaces

a. Equipment and systems that are unique to the national defense mission, including the operation, testing, and maintenance procedures dictated by the design and configuration. Examples are: military weapons, aircraft, ships, submarines, missiles and missile sites, early warning systems and sites, military space systems, ordnance, tanks, and tactical vehicles.

b. Operations or workplaces that are uniquely military, such as field maneuvers; combat training; naval operations; military flight and missile operations; associated research, test, and development activities; and actions required under emergency conditions.

Mishap - Any unplanned or unexpected event or series of events that result in damage to DoD property; occupational illness or injury to on-duty DoD military or civilian personnel; or damage

to public and private property or injury and illness to non-DoD personnel caused by DoD operations.

Mishap Severity Classification - DoD mishaps are classified according to the severity of resulting injury, occupational illness or property damage. Property damage severity is generally given in terms of cost and is calculated as the sum of the costs associated with DoD property and non-DoD property that is damaged in a DoD mishap. Additionally, if a reportable occupational injury or occupational illness results, the event is reportable even if the associated costs are less than the minimum dollar criteria. The following classifies DoD mishaps:

(1) **Class A Mishap**. The resulting total cost of reportable material property damage is \$1,000,000 or more; or an injury or occupational illness results in a fatality or permanent total disability.

(2) **Class B Mishap**. The resulting total cost of reportable material (property) damage is \$200,000 or more, but less than \$1,000,000; or an injury or occupational illness results in permanent partial disability; or three or more personnel are inpatient hospitalized.

(3) **Class C Mishap**. The resulting total cost of reportable material (property) damage is \$20,000 or more, but less than \$200,000; a non-fatal injury that causes any loss of time from work beyond the day or shift on which it occurred; or a non-fatal illness or disease that causes loss of time from work or disability at any time (lost time case). For reporting purposes, refer to paragraph 1408a.

(4) **Class D Mishap**. The resulting total cost of reportable material (property) damage is less than \$20,000, or a non-fatal injury (no lost time or first aid case) that does not meet the criteria of a Class C mishap.

Mist – Finely divided liquid droplets suspended in air and generated by condensation or by atomization.

Monitoring Industrial Hygiene - Measurement of the amount of contaminant or physical stress reaching the worker in the environment.

Monitoring (Medical Surveillance) - The pre-placement and periodic evaluation of the health status of workers exposed to toxic substances or physical agents in the workplace - measures the effects of contaminant on a worker's body functions and tissues, e.g., decreased lung function, dermatitis, abnormal blood count.

Monitoring Hearing Tests - Periodic hearing tests, obtained subsequent to the reference hearing test, which are used to detect shifts in the individual's threshold of hearing.

MSHA - Mine Safety and Health Administration

NAVOSH - Navy Occupational Safety and Health

Navy Civilian Personnel

(a) **Navy Federal Civilian Personnel.** All career, career-conditional and temporary (whether full-time or part-time or intermittent) Department of the Navy (DON) civilian employees who are subject to Civil Service regulations who are paid from appropriated Federal funds and are covered by the Federal Employees' Compensation Act. The Navy excludes civilians paid by appropriated funds on a contract or fee basis.

(b) **Navy Non-Appropriated Fund (NAF) Civilian Personnel.** All civilian personnel the Navy employs to serve Navy activities that are paid from non-appropriated funds and are covered by the Longshoreman and Harbor Workers' Compensation Act. These employees typically work in special services, recreation and athletic programs, hobby shops, open messes, and Navy Exchanges. The Navy excludes civilians paid by non-appropriated funds on a contract or fee basis.

(c) **Navy Foreign National Civilian Personnel.** Foreign nationals the Navy employs in direct (appropriated or non-appropriated funds) or indirect-hire (contract or fee basis) status when the Navy has supervisory control. The Navy excludes those paid on a contract or fee basis when the host government has supervisory control. Activities shall review and determine if the host nation injury and illness reporting and compensation systems supersede DoD requirements per the status of forces agreements.

Navy Contractor - A non-Federal employer engaged in performance of a Navy contract, whether as prime contractor or subcontractor.

Navy Employees - For purpose of this instruction, Navy employees include all military and civilian personnel (except contractors) paid from Navy appropriated and non-appropriated funds.

Navy Non-Operational Mishap - Mishaps that are not Navy operational mishaps. These consist of cases in which Navy military personnel or any military personnel assigned to the Navy are injured while using facilities the Navy owns and maintains that are service-related facilities, such as pools, athletic fields, retail stores, clubs, child care centers, and housing. This category also includes cases in which any person (military, Federal civilian, non-DoD) is injured due to negligence in the maintenance of service-related facilities the Navy owns and maintains and also includes cases in which off-duty Navy military personnel or military personnel assigned to the Navy are injured in any other capacity not previously mentioned and not considered as operational.

Navy Operational Mishap- Any mishap involving DoD or non-DoD property damage or personal injury as a direct result of the execution of specific Navy operations.

Navy Operations- Official, authorized activities or facilities that the Navy conducts, provides, owns and maintains. Facilities include aircraft, surface ships, submarines, government motor vehicles, and shore establishments, including service-related facilities.

Navy Occupational Safety and Health (NAVOSH) Standards - Occupational safety and health standards published by the Navy which include, are in addition to, or are alternatives for

the OSHA standards which prescribe conditions and methods necessary to provide a safe and healthful working environment.

Navy Personnel - For purposes of this instruction include the following categories.

a. **Civilian** - General Schedule and Wage Grade employees; Youth/Student Assistance Program employees; Foreign Nationals directly employed by Navy commands; and non-appropriated fund employees.

b. **Military** - All U.S. Navy personnel on active duty; U.S. Military Reserve or National Guard personnel on active duty or in drill status; Service Academy midshipmen/cadets; Reserve Officer Training Corps cadets when engaged in directed training activities; Foreign National military personnel assigned to Navy commands; and personnel of other branches of the Armed Forces serving with the Navy.

Near Field - The electromagnetic field which exists relatively near the radiation source. In this area, the electric and magnetic fields do not exhibit a plane wave relationship, and power does not decrease with the square of the distance from the source. The near field region is further subdivided into the reactive near field region, which is closest to the antenna and contains most or nearly all of the stored energy associated with the field of the antenna, and the radiating near field region, where the radiation field predominates over the reactive field but lacks substantial plane wave character and is complicated in structure.

Negative Exposure Assessment (Asbestos) - For any one specific asbestos job performed by employees who have been trained in compliance with 29 CFR 1910.1001, 1915.1001 and 1926.1101, the employer may demonstrate that employee exposures will be below the PELs.

NIOSH - National Institute for Occupational Safety and Health.

NIOSH/MSHA-Certified Equipment - Respirators or other equipment that have been tested by NIOSH or MSHA and jointly approved as meeting certain minimum requirements of protection against specified hazards.

No Lost Time Case - A non-fatal traumatic injury or occupational illness or disease that does not meet the definition of Lost Time Case or First Aid Case. This definition includes, but is not limited to, each case where medical expense is incurred but no lost time from work is incurred as represented by a charge to leave or COP.

Noise Exposure- Personal interaction to a combination of sound level and its duration.

Non-DoD Personnel- Off-duty DoD civilian personnel, persons other Federal Agencies employ and other civilians and foreign nationals that DoD does not employ.

Normal Working Population Exposed to Hazard - The number of people whose authorized activities on Navy property cause them to be exposed to the specified hazardous condition on a significant number of occasions during a work year; no one should be included in this estimate who is exposed to the cited hazard so infrequently or at such low exposure concentrations that it can be considered insignificant. For example, do not count as exposed those persons who only occasionally pass by the door of a room where a hazard is present.

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For specific chemical or physical agents, the population exposed is dependent on the numbers of personnel involved in the specific activity, the effectiveness of confinement or containment systems, and the process steps involved. For agents requiring extensive processing, potential exposure may be plant-wide, but will vary in intensity. If isolation is practiced, the exposed population may be only one worker per shift. If collection systems are not used to confine potential emissions, personnel not actively engaged in the operation may also be exposed to hazardous substances.

Populations exposed to a specific safety hazard will vary with the type of hazard and its locations. If the safety hazard is associated with a specific piece of equipment, only the operator may be exposed. For a grinder, the population exposed could differ according to the safety features of the equipment. If the grinder has a guard, only the operator might be injured through contact with the grinding wheel; on the other hand, if a grinder is without an adequate guard, shattering of the grinding wheel could injure other personnel in the immediate vicinity.

Occupational Health - That multidisciplinary field of general preventive medicine that is concerned with prevention and/or treatment of illness induced by factors in the workplace environment. The major disciplines involved are: occupational medicine, occupational health nursing, epidemiology, toxicology, audiology, industrial hygiene, and health physics.

Occupational Health Care Provider - Occupational medicine physicians, occupational health physician assistants, occupational health nurses, occupational audiologists, and independent duty corpsmen trained to provide occupational health services.

Occupational Illness - A physiological harm or loss of capacity that by systemic infection; continued or repeated stress or strain; exposure to toxins, poisons, fumes, etc.; or other continued and repeated exposures to conditions of the work environment over a long period of time. For practical purposes, an occupational illness or disease is any condition not meeting the definition of occupational injury. .

Occupational Injury - A wound or other condition of the body cause by acute exposure to physical or toxic agents or external force, including stress or strain. The injury is identifiable as to time and place of occurrence and member or function of the body affected and results from a specific event or incident, or series of events or incidents within a single day or work shift. The injury must arise out of or in the course of employment or performance of duty. All injuries occurring aboard Navy service craft and small boats are occupational injuries.

Occupational Injury or Illness Categories- 29 CFR 1960 and enclosure (5) of reference 14-1 list the following injury category definitions. They apply to on-duty military and civilian personnel.

(1) **Fatal Occupational Injury or Occupational Illness.** One that results in death from a mishap or the complications arising there from, regardless of the length of time between the mishap and a subsequent death.

(2) **Permanent Total Disability.** Any non-fatal injury or occupational illness that in the opinion of competent medical authority, permanently and totally incapacitates personnel to the extent that they cannot follow any gainful occupation.

NOTE:

The Navy considers the loss or the loss of use of both hands, both feet, both eyes, or a combination of any of these body parts as a result of a single mishap to be a permanent total disability.

(3) Permanent Partial Disability. An injury or occupational illness that does not result in death or permanent total disability but, in the opinion of competent medical authority, results in the loss or permanent impairment of any part of the body, with the following exceptions:

- (a) Loss of teeth
- (b) Loss of fingernails or toenails
- (c) Loss of tip of finger or tip of toe. (The Navy considers loss of complete first joint to be a permanent partial disability and the loss of any part of the thumb or great toe a permanent partial disability.)
- (d) Inguinal hernia, if it is repaired
- (e) Disfigurement
- (f) Sprains or strains which do not cause permanent limitation of motion.

(4) Lost Time Case. A non-fatal traumatic injury that causes any loss of time from work (even if the person chooses to use sick or annual leave instead of continuation of pay (COP), as long as there is medical justification) beyond the day or shift it occurred; or a non-fatal, non-traumatic illness or disease that causes disability at any time. Office of Worker's Compensation Program (OWCP) defines disability as the incapacity, because of injury in employment, to earn the wage which the employee was receiving at the time of such injury or illness. For military on-duty injuries or illnesses, lost work time results if the military person is sick in quarters (SIQ), hospitalized, or on convalescent leave. The Navy requires medical documentation to justify lost time cases. If a physician or equivalent returns a person to work and the person elects on his or her own to take sick or annual leave, activities shall not count such time as lost time for mishap recording purposes.

(5) No Lost Time Case. A non-fatal traumatic injury or occupational illness or disease that does not meet the definition of Lost Time Case or First Aid Case (these are cases where employees incur medical expense but not lost time from work as represented by a charge to leave or COP).

(6) First Aid Case. (Civilians Only) A first aid case is a specific type of no lost time case which meets one of the following criteria:

- (a) A non-fatal traumatic injury or occupational illness or disease that requires one or more visits to a medical facility for examination or treatment during on-duty hours beyond the date of injury as long as employees incur no medical expense and activities charge no leave or COP to the employee.

Glossary

(b) A non-fatal traumatic injury or occupational illness or disease that requires two or more visits to a medical facility for examination or treatment during non-duty hours beyond the date of injury as long as activities charge no leave or COP and incur no medical expense.

Occupational Medicine Services - Occupational medicine services includes medical examinations and tests related to pre-employment, pre-placement, periodic, and pre-termination; tests required for protecting the health and safety of naval personnel; job-related immunizations and chemoprophylaxis; education and training related to occupational health; and other medical services provided to avoid lost time or to improve employee effectiveness.

Off-Duty Personnel - For the purpose of mishap reporting, Navy personnel are off-duty when they are not on-duty.

On-Duty Personnel - For the purpose of mishap reporting, Navy military and civilian personnel are on-duty when they are:

(a) Physically present at any location (area under the control of a DoD component) where they are to perform their officially assigned work. (This includes activities incidental to normal work activities occurring on DoD installations, such as lunch, coffee, or rest breaks, and all activities aboard vessels, service craft or small boats.)

(b) Transport by DoD or command conveyance to perform official work. (This includes reimbursable or non-reimbursable travel in private motor vehicles to perform official duty, but not routine travel to and from work. The Navy considers injuries occurring in DoD-provided and/or -maintained parking areas on-duty if the injured person has yet to enter or has already left his or her vehicle.)

(c) Participating in compulsory physical training activities (including compulsory sports or command-directed activities during work hours). Navy civilians participating in voluntary command-sponsored events during normal working hours are on-duty, but not reportable. The Navy considers mishaps as a result of participation in an activity-approved health and wellness program on-duty.

(d) Ready Reservists performing inactive duty training (drill) and are between departure and return home without diversion.

(e) On temporary duty or temporary additional duty (TDY/TAD). The Navy covers personnel on assignment away from the regular place of employment 24 hours a day with respect to any injury that results from activities essential or incidental to the temporary assignment. However, when personnel deviate from the normal incidents of the trip and engage in activities, personal or otherwise, which are not reasonably incidental to the duties of the temporary assignment contemplated by the employer, the Navy ceases to consider the person on-duty for investigation purposes of occupational injuries or illnesses. For civilians, these deviations may not be compensable (OWCP determines on a case-by-case basis).

OSHA - Occupational Safety and Health Administration, Department of Labor (DOL).

OSHAct - The Williams-Steiger Occupational Safety and Health Act of 1970 (Stat. 1590 et seq., 29 U.S.C. 651 et seq).

OSHA Standards - OSHA standards are those standards issued by the DOL's Occupational Safety and Health Administration under Section 6 of the OSHAct.

Oxygen-Deficient Atmosphere - An atmosphere having an oxygen concentration that is below the minimum legal requirement (19.5 percent), but above that which is immediately dangerous to life and health. Such a deficiency is generally caused by oxidation or by the dilution/displacement of oxygen by other gases.

Oxygen-Enriched Atmosphere - An atmosphere containing more than 22 percent oxygen by volume.

Particulate Matter - A suspension of fine solid or liquid particles in air, such as: dust, fog, fume, mist, smoke, or spray. Particulate matter suspended in air is commonly known as an aerosol.

PEL - Permissible Exposure Limit. The maximum permissible concentration of a toxic chemical or exposure level of a harmful physical agent (normally averaged over an 8-hour period) that an employee may be exposed.

Permit Required Confined Space (PRCS) - A confined space that, based on a hazard analysis by the CSPM, requires a special permit for entry.

Pesticide - Any chemical used to kill pests, such as insects. Examples: Baygon® (propoxur), Killmaster® (dursban), d-phenothrin, malathion.

Plane Wave - An electromagnetic wave characterized by mutually orthogonal electric and magnetic fields which are related by the impedance of free space (377 ohms).

Potentially Hazardous Noise - Exposure to greater than 84 dB(A) sound level or 140 dB peak sound pressure level for impact or impulse noise. The safe exposure time (T) for periods of less than 16 hours in any 24-hour period may be determined using the equation:

$$T = 16/2^{[(L-80)/4]}$$

where T = Time in hours and L = Effective sound level in dB.

Potentially Hazardous Noise Area -

- a. Any work area where the A-weighted sound level (continuous or intermittent) is greater than 84 dB.
- b. Any work area where the peak sound pressure level (impulse or impact noise) exceeds 140 dB.

Power Density - The amount of power per unit area in an electromagnetic field, usually expressed in milliwatts per square centimeter or watts per square meter.

Pressing Up - The process of filling a space with a liquid to exclude flammable vapor/air mixtures from the space.

Glossary

Presumed Asbestos Containing Material -(PACM) - Thermal system insulation and surfacing material found in buildings constructed no later than 1980.

Procurement - The process of obtaining material via the supply system directly from the private sector in such a manner that the local activity is actually involved in the "purchasing" via contract, blanket purchase agreement, petty cash, or other means. See "Acquisition."

Protective Clothing - An article of clothing furnished to an employee at government expense and worn for personal safety and protection in the performance of work assignments in potentially hazardous areas or hazardous conditions.

Protective Equipment - A device or item to be worn, used, or put in place for the safety or protection of an individual or the public at large, when performing work assignments in or entering hazardous areas or under hazardous conditions. Equipment includes hearing protection, respirators, electrical matting, barricades, traffic cones, lights, safety lines, life jackets, etc.

Pure-Tone Audiogram - A set of measures that compares the hearing sensitivity of an individual in detecting faint pure tones in a quiet test room, to the corresponding ability in a normal-hearing young adult population. Usually shown as a graph or table depicting hearing thresholds in decibels at the frequencies of 500, 1,000, 2,000, 3,000, 4,000 and 6,000 Hz.

Radiofrequency Radiation (RFR) - Electromagnetic radiation at frequencies between 10 kHz and 300 GHz.

Rate of Exposure - The number of hours per year it is estimated that an average member of the exposed population is exposed to the cited hazardous condition. This figure should be an estimate by someone familiar with the work situation, based on the best available existing information (such as time cards). Special studies to obtain these data are not required.

The estimate should be based on net working days per year (i.e., total working days per year minus vacations and holidays, but not sick leave). Usually, net working days is 40 hours per week and 50 weeks per year, i.e., 2,000 hours per year.

For an exposure to a health hazard, the rate of exposure may be easily calculated if the individual works only at the operation in question. However, an employee will generally work in an area of potential exposure for a period of time and move to another location. If the transiency follows a predictable routine, the rate of exposure can be assessed by determining the degree of hazard at all work locations and eliminating those where the potential hazard is minimal.

The rate of exposure to safety risks may also vary. As an example, in general traffic areas, the lack of a guard rail on platforms or hand rails on stair steps may create brief repetitive exposures to several people, including operators, inspectors, and occasional casual personnel. In such cases, calculate average use of the steps or the platforms to determine the rate of exposure.

Recognized Potential Hazard - A health hazard with an employee exposure (without regard to personal protective equipment) greater than the action level (as an 8-hour time-weighted average), short-term exposure limit, ceiling limit, or peak limit.

Recordable Mishap - An on-duty occupational injury or illness meeting the definition of fatality, permanent total or permanent partial disability, lost time case, no lost time case, or first aid case. (The "first aid case" designation only applies to civilian personnel.) The Navy requires activities to enter these cases on the appropriate occupational injury and illness log.

Recordable Occupational Injuries or Illnesses – (See "Recordable Mishap".)

Recovery - The principle by which removal from noise allows the inner ear hair cells to regain their pre-noise exposed condition.

Recurrence - A situation in which an injured employee, after returning to work, is again disabled and stops work as a result of the original injury. (Recurrent injuries or illnesses do not require new entries on the Log of Occupational Injuries or Illnesses; however, adjustments may be required to reflect changes in the extent or outcome of the case).

Recycled Material - Recycled material is material that can be utilized in place of a raw or virgin material in manufacturing a product. See 40 CFR 261.

Reference Hearing Test - A hearing test performed when an individual is not experiencing a temporary threshold shift in hearing or other transient otologic pathology. The resulting audiogram will be used as a reference in computing any possible future threshold shift. Normally, this reference audiogram will be first performed for hearing conversation purposes.

Regulated Area (Asbestos) - An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit.

Reportable Mishap - Any mishap as defined in Section 1408. Activities should not consider the criteria all-inclusive; if there is a "lesson to be learned," whether or not it meets the criteria, then activities should submit a report.

Reportable Occupational Injuries and Illnesses

- a. All fatalities resulting from occupational injuries or illnesses, regardless of the time between the injury and death, or the length of the illness
- b. All lost workday cases involving the loss of 120 hours or more for military and 5 days or more for civilians
- c. Electric shock - Any case ashore resulting from equipment design deficiency
- d. Chemical or toxic exposure or oxygen deficiency - All cases requiring medical examination or attention. (Excluded are cases in which medical attention was solely due to medical surveillance requirements.)
- e. Any student mishap at a training command that results in termination of training.

Glossary

Reproductive Hazard - Any occupational stressor (biohazard, chemical, or physical) that has the potential to adversely affect the human reproductive process.

Respiratory Protection Program Manager RPPM - An individual who meets the requirements of the Office of Personnel Management for safety and health personnel as defined in Section 0902b, has successfully completed the training requirements of chapter 15, and is designated as the RPPM in writing by the commanding officer.

Restricted Area - Any area where access is controlled for the purpose of excluding entry of persons of less than 140 centimeters (55 inches) in stature.

RFR Permissible Exposure Limit (PEL) - The maximum level expressed in specific absorption rate (SAR) or derived equivalent power density, electric field strength, or magnetic field strength to which an individual may be exposed which, under the conditions of exposure, will not cause detectable bodily injury according to present medical knowledge.

Risk Assessment Code (RAC) - A simple expression of risk that combines the elements of hazard severity and mishap probability. This assessment will be used to help prioritize abatement projects.

Safety Data File - The computer file, developed as part of the HMIS, used to store the hazardous material characteristics relevant to their safe handling, use, and disposal.

Safety or Health Professional - Persons who meet the Office of Personnel Management standards for Safety and Occupational Health Specialist/Manager GS-018, Safety Engineer GS-803, Safety Technician GS-019, Fire Protective Engineer GS-0804, Fire Protection Specialist/Marshall GS-0081, Medical Officer GS-602, Health Physicist GS-1306, Industrial Hygienist GS-690, Occupational Health Nurse GS-610, Industrial Hygiene Technologist, Audiologists, Radiation Health Officers, or comparably qualified personnel as determined by appropriate Navy authority.

Serious Physical Harm - Permanent, prolonged, or temporary impairment of the body in which part of the body is made functionally useless or is substantially reduced in efficiency on or off the job. Illness could shorten life or significantly reduce physical or mental efficiency by inhibiting the normal function of part of the body. Examples of such illnesses are silicosis, asbestosis, hearing impairment, radiation exposure and visual impairment.

Service Craft - Self-propelled and non-self-propelled small vessels and craft designed to operate in coastal and protected waters and provide general support to combatant forces and shore establishments (examples are tugs, barges, floating cranes, yardcraft).

Significant Threshold Shift - A change of hearing threshold level of 15 dB or greater, in either ear, at any frequency (1,000 to 4,000 Hz) between the reference audiogram and any subsequent audiogram. In addition, a change in hearing threshold of an average of 10 dB or more at 2,000, 3,000, and 4,000 Hz in either ear shall be considered a significant threshold shift.

Small Boat - Self-propelled, water-borne small craft capable of limited independent operation in protected waters (examples are launches, Boston whalers).

Smoke - Carbon or soot particles less than 0.1 micrometer in size resulting from the incomplete combustion of carbonaceous materials such as coal or oil.

Solvent - A substance, most commonly water, but often an organic compound that is used to dissolve another substance.

Specific Absorption Rate (SAR) - The time rate at which RFR energy is imparted to an element of biological body mass. It is usually measured in W/kg or normalized to incident power density in W/kg/mW/cm².

Specific Hazard (Safety or Health) - A word or words constituting the distinctive designation of the cited hazard; for example, the name of the safety hazard might be "unguarded flywheel" or "lack of fire exit"; the name of the health hazard might be "asbestos fibers in the air," "mercury," or "noise." General terms are not acceptable health hazards.

For chemical hazards, the specific name of the dangerous chemical is required. As an example, if a solvent is being used, its chemical name, e.g., "trichloroethylene," must be given; the word "solvent" is not adequate. If more than one chemical is involved in the work operation, or a chemical mixture is being used, give the chemical name of the single most hazardous chemical involved. If the specific hazard is a chemical by-product or by-product mixture resulting from the work operation, give the chemical name of the single most hazardous by-product.

For noise hazards, specify whether they are steady-state or impulse. When the cited health standard is one that details ventilation requirements for a particular type of operation, such as spray painting or arc-welding, the specific hazard name should be "insufficient ventilation to control _____." Terms such as spray paint, welding fumes, etc., are adequate only in cases relating to ventilation standards.

Standard - A rule, established by competent authority, which designates safe and healthful conditions or practices under which work must be performed to prevent injury, occupational illness, or property damage.

a. **Criteria** - Those parts of a standard that establish a measurable quality, e.g., specifications, inspection intervals, etc.

b. **Equivalent Criteria** - The measurement of equivalency shall be a judgment based on the preponderance of information available. Generally they must provide protection at least as effective as the criteria they replace.

State OSHA Official - Investigator or compliance officer employed by a state that has an OSHA-approved occupational safety and health plan.

Supervisor - (Military or civilian), one who immediately directs the job efforts of a working group.

Systems Acquisition - The process by which weapon systems, weapons platforms, and related equipments are conceived, designed, obtained, and introduced into operational use.

Transportation Data File - The computer file, developed as part of the HMIS, used to store the hazardous material characteristics relevant to their safe transportation and handling.

TLV - Threshold Limit Value. Threshold limit values are established by the American Conference of Governmental Industrial Hygienists (ACGIH). TLVs refer to airborne concentrations of a substance and represent conditions under which it is believed that nearly all workers may be exposed day after day without adverse effect.

Toxic Substance or Harmful Physical Agent - any chemical substance, biological agent (bacteria, virus, fungus, etc.), or physical stress, noise, heat, cold, vibration, repetitive motion, ionizing and non-ionizing radiation, hypo-hyperbaric pressure, etc., which:

- a. Is regulated by any NAVOSH standard or Federal law or rule due to a hazard to health.
- b. Is listed in the latest printed edition of the National Institute for Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemicals.

TWA - Time-Weighted Average. An average value weighted in terms of the actual time that it exists during a given time interval.

Vapor - Gaseous form of substances that are normally in the solid or liquid state.

Voluntary Respirator Use – is when an employee chooses to wear a respirator, even though the use of a respirator is not required by the activity or by any OSHA standard. (This glossary term was modeled from language in the OSHA small Entity Compliance Guide). When there is no risk of personal overexposure and only filtering facepiece respirators are issued for voluntary use, activities are not required to have a complete program. However, they must ensure that the facepieces are not dirty or contaminated, that their use does not interfere with the employee's ability to work safely, and that the information in appendix D and the respirator approval label are provided to employees.

If respirators are required to be worn in the workplace to protect the health of the employee, or where an activity requires an employee to wear a respirator, i.e., in a situation where reference 15-3 does not otherwise require such use, or when respirators other than filtering facepieces are worn by voluntary users, then a complete written respiratory protection program must be established and implemented.

Working Days - Monday through Friday (excluding Federal holidays), or other appropriate authorized days of agency operation.

Workplaces -

- a. **Applicable Workplaces and Operations** - Navy workplaces and operations generally comparable to those of business and industry in the private sector. Examples include facilities involved and work performed in: the repair and overhaul of vessels, aircraft, or vehicles, except for equipment trials; construction; supply services; civil engineer or public works; medical services; and office work. Accordingly, Navy workplaces and operations such as those involved with shipyards, air rework facilities, public work centers, and like operations are included in this definition.

b. Uniquely Military Equipment, Systems and Operations - Navy equipment and systems which are unique to the national defense mission. Examples include: military aircraft, ships, submarines, missiles and missile sites, early warning sites, military space systems, artillery, tanks, and tactical maneuvers, naval operations, military flight operations, associated research test and development activities, and actions required under emergency conditions.

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